



NAVAL POSTGRADUATE SCHOOL

MONTEREY, CALIFORNIA

MBA PROFESSIONAL REPORT

**Disaster Response Contracting in a Post-Katrina World: Analyzing
Current Disaster Response Strategies and Exploring Alternatives to
Improve Processes for Rapid Reaction to Large Scale Disasters within
the United States**

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December 2006**

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FOR RAPID REACTION TO LARGE SCALE DISASTERS WITHIN THE
UNITED STATES**

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from the

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TABLE OF CONTENTS

I.	INTRODUCTION.....	1
A.	BACKGROUND	1
B.	PURPOSE AND OBJECTIVES OF RESEARCH	2
C.	SCOPE, LIMITATIONS AND ASSUMPTIONS	3
D.	RESEARCH QUESTIONS.....	4
E.	RESEARCH METHODOLOGY	4
F.	ORGANIZATION OF MBA PROJECT REPORT	4
II.	DISASTER RESPONSE PRIMER: WHO IS IN CHARGE?	7
A.	OVERVIEW	7
B.	HISTORY	7
C.	STAFFORD ACT.....	9
D.	DEPARTMENT OF HOMELAND SECURITY	11
E.	FEDERAL EMERGENCY MANAGEMENT AGENCY	14
F.	CHAPTER SUMMARY.....	18
III.	THE FEDERAL RESPONSE TO HURRICANE KATRINA	19
A.	INTRODUCTION.....	19
B.	OVERVIEW: THE STORM	19
C.	DHS / FEMA RESPONSE	22
D.	DEPARTMENT OF DEFENSE INVOLVEMENT	24
E.	CHAPTER SUMMARY.....	30
IV.	WHAT WENT WRONG?.....	31
A.	OVERVIEW	31
B.	STRATEGIC ANALYSIS OF FEMA AND IT'S RESPONSE TO KATRINA.....	31
C.	FUNDING.....	42
D.	THE ACQUISITION WORKFORCE.....	44
E.	SUPPLY CHAIN SHORTFALLS.....	45
F.	CHAPTER SUMMARY.....	49
V.	EXPLORING THE ALTERNATIVES: LEVERAGING AVAILABLE CONCEPTS, SYSTEMS AND TOOLS FOR IMPROVED ACQUISITION PROCESSES AND RAPID DISASTER RESPONSE.....	51
A.	OVERVIEW	51
B.	FOCUSING FEMA'S FUTURE: INITIATIVES IN PROGRESS	51
C.	EMERGENCY STREAMLINED ACQUISITION PROCEDURES	56
D.	TELECOMMUTING / TELEWORKING.....	60
E.	NAVAL POSTGRADUATE SCHOOL GLOBAL INFORMATION NETWORK ARCHITECTURE TECHNOLOGY.	65
F.	RAPID ORDERING SYSTEM	72
G.	ONLINE REVERSE AUCTIONS.....	77
H.	CHAPTER SUMMARY.....	82

VI.	ANALYZING AND PRIORITIZING THE ALTERNATIVES	83
A.	OVERVIEW.....	83
B.	DESIGN SCHEMA.....	84
C.	ATTRIBUTE ANALYSIS.....	85
D.	PRIORITIZING THE INITIATIVES	94
E.	CHAPTER SUMMARY.....	96
VII.	CONCLUSIONS AND RECOMMENDATIONS.....	99
A.	CONCLUSIONS TO RESEARCH QUESTIONS.....	99
B.	RECOMMENDATIONS.....	101
C.	AREAS FOR FUTURE RESEARCH.....	105
D.	SUMMARY	107
	LIST OF REFERENCES.....	109
	INITIAL DISTRIBUTION LIST	119

LIST OF FIGURES

Figure 1.	Government organization before and after the creation of the Department of Homeland Security.	13
Figure 2.	Federal Emergency Management Agency Divisions.....	14
Figure 3.	Federal Emergency Management Agency Regions and Regional Offices.	15
Figure 4.	Tropical Storm Katrina on August 25, 2005.....	19
Figure 5.	Hurricane Katrina path of movement.	20
Figure 6.	Diagnostic typology of FEMA’s stakeholders.....	38
Figure 7.	Emergency commodity positioning prior to Katrina landfall	47
Figure 8.	Apple iMac desktop system.	63
Figure 9.	Dell Inspiron 9400 laptop system.	64
Figure 10.	Integrating management information systems.	66
Figure 11.	Depiction of the Department of Defense’s characterization of the Global Information Grid	67
Figure 12.	Network-centric connectivity of the Global Information Grid	70
Figure 13.	Fort Leavenworth Integrated Base Operations Center Common Operating Picture display.....	71

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LIST OF TABLES

Table 1.	Emergency Support Functions and supporting agencies/organizations.....	16
Table 2.	Emergency Support Functions and scope of each function.	17
Table 3.	Organizational inertia at the Federal Emergency Management Agency	41
Table 4.	Critical supply commodities for emergency responses.	46
Table 5.	Key Global Information Grid challenges.....	68
Table 6.	Initiatives for weighted analysis.	84
Table 7.	Scoring system for weighted analysis.....	85
Table 8.	Criteria used for weighted analysis.....	85
Table 9.	Weighting for the ability to improve the acquisition workforce.....	86
Table 10.	Weighting for the ability to increase procurement efficiency.	87
Table 11.	Weighting for the ability to increase compliance to regulations.	87
Table 12.	Weighting for the ability to increase coordination with other activities.....	88
Table 13.	Weighting for the ability to improve competition in contracting.	88
Table 14.	Ratings for the ability to improve the acquisition workforce.	90
Table 15.	Ratings for the ability to increase procurement efficiency.	91
Table 16.	Ratings for the ability to increase compliance to regulations.	92
Table 17.	Ratings for the ability to increase coordination with other activities.	93
Table 18.	Ratings for the ability to improve competition in contracting.....	94
Table 19.	Total scores for the initiatives.....	94
Table 20.	Summary of ratings and scores for all initiatives.....	96
Table 21.	Total weighted scores for the initiatives.	97

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LIST OF ACRONYMS AND ABBREVIATIONS

ACI – Advanced Contracting Initiative
AMCROSS – American Red Cross
CAPT – Captain
CDR - Commander
CONUS – Continental United States
COP – Common Operating Picture
CRADA – Cooperative Research and Development Agreement
DAE – Disaster Assistance Employee
DAU – Defense Acquisition University
DAWIA – Defense Acquisition Workforce Improvement Act of 1990
DC – District of Columbia
DCAA – Defense Contracting Audit Agency
DCMA – Defense Contract Management Agency
DCO – Defense Coordinating Officer
DDSP – Defense Distribution Center Susquehanna, Pennsylvania
DDX – Defense Logistics Agency’s Deployable Depot
DFAS – Defense Finance and Accounting Service
DHS – Department of Homeland Security
DHS-IG – Department of Homeland Security Office of the Inspector General
DLA – Defense Logistics Agency
DLA DLOC – Defense Logistics Agency Defense Logistics Operations Center
DMAT – Disaster Medical Assistance Team
DoD – Department of Defense
DOT – United States Department of Transportation
DRCC – Disaster Response Contracting Corps
DRF – Disaster Relief Fund
DWCF – Defense Working Capital Fund
EOC – Emergency Operations Center

ERT – Emergency Response Team
ERT-A – Emergency Response Team – A (one of three teams: A, B, C)
ERT-N – Emergency Response Team – National
ESF – Emergency Support Function
FAI – Federal Acquisition Institute
FAR – Federal Acquisition Regulations
FCO – Federal Coordinating Officer
FEMA – Federal Emergency Management Agency
FIRST – Federal Incident Response Team
FISC – Fleet and Industrial Supply Center
FOC – Full Operational Capability
FTE – Full-time employee
FY – Fiscal Year
GAO – Government Accountability Office
GIG – Global Information Grid
GINA – Global Information Network Architecture
GS – Government Schedule
GSA – General Services Administration
HCA – Head of Contracting Activity
HLT – Hurricane Liaison Team
HSPD-5 – Homeland Security Presidential Directive 5
HUD – Department of Housing and Urban Development
IBOC – Integrated Base Operations Center
ICOC – Interagency Contracting Operations Cell
ICS – Incident Command System
ID/IQ – Indefinite Delivery/Indefinite Quantity
IEM – Integrated Emergency Management
IIMG – Interagency Incident Management Group
IT – Information Technology
ITV – In-Transit Visibility

JFO – Joint Field Office
LCDR – Lieutenant Commander
LIMS III – Logistics Information Management System III
LOGCAP – Logistic Civil Augmentation Program
LtCol – Lieutenant Colonel
MAIDIQ – Multiple Award Indefinite Delivery / Indefinite Quantity
MBA – Masters of Business Administration
MERS – Mobile Emergency Response Support (MERS)
MIS – Management Information System
MRE – Meals, Ready-to-Eat
NAVSUP – Navy Supply Systems Command
NDMS – National Disaster Medical System
NGO – Non-Governmental Organization
NIMS – National Incident Management System (NIMS)
NIFC – National Interagency Fire Center
NORTHCOM – United States Northern Command
NPRA – National Preparedness and Response Authority
NPS – Naval Postgraduate School
NRCC – National Response Coordination Center
NRP – National Response Plan
NRPA – National Preparedness and Response Authority
NRP-CIA – National Response Plan Catastrophic Incident Annex
OMB – Office of Management and Budget
OPM – United States Office of Personnel Management
ORA – Online Reverse Auction
PFO – Principal Federal Official
PVO – Private Volunteer Organization
QDR – Quadrennial Defense Review
ROS – Rapid Ordering System
RDML – Rear Admiral, Lower Half

RRCC – Regional Response Coordination Center

SAP – Simplified Acquisition Procedures

SEABEE – U.S. Navy Construction Battalion

SOP – Standard Operating Procedure

U.S. – United States

US&R – Urban Search and Rescue

USACE – United States Army Corps of Engineers

9/11 – September 11, 2001 (representing the terrorist attacks in the U.S.)

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I. INTRODUCTION

A. BACKGROUND

At 6:10 AM on August 29, 2005, Hurricane Katrina made landfall in Plaquemines Parish Louisiana as a Category 4 storm. By then much damage had already begun to occur hours earlier as 135 mph winds and 15-25 foot storm surges funneled onto New Orleans and into Lake Pontchartrain, overtopping and breaching critical levees adjacent to the 9th Ward and the 17th Street Canal.¹

One of the most catastrophic disasters in United States (U.S.) history began to unfold before our eyes as we stood by our televisions and radios, wondering what was going on and how we could help- so many wanted to do so much to help. Those that could swarmed to the Gulf Coast to help out or they took survivors into their homes. Airlines shuttled survivors out of the disaster zone as soon as it was practicable.² Soon, survivors were being relocated to every state in the Union. Those that could not help gave what they could. The devastation was so vast, though, that it seemed that just giving money was not enough. Many hoped that, and relied on the hope that, the Federal Government's response would do what they could not.

Unfortunately, the area of destruction was so large, over 90,000 square miles, an area larger than Great Britain,³ that the Federal government was ill equipped to the effort. That being said, the response was massive, heroic, and saved untold number of lives.

Even so, the Federal Government's response, specifically the Federal Emergency Management Agency's (FEMA's) response, to Hurricane Katrina has come under a great deal of scrutiny. The general consensus paints a picture of an organization that failed, for the most part, to live up to its purpose. Post- Katrina operations and organization have been the focus of many discussions within government and among the many

¹ U.S. Congress, Senate Report, *Hurricane Katrina: A Nation Still Unprepared*, 4-4.

² Interview with Ms. Cheryl Hussey, Technical Publications Editor at Frontier Airlines, (May 6, 2006).

³ U.S. Congress, Senate Report, 1-1.

stakeholders. With the risk of future terrorist attacks, environmental disasters, geophysical, climate and weather related events at increased levels, many are calling for a significant and immediate change in the way the Federal Government, mainly FEMA, Department of Homeland Security (DHS), and the Department of Defense (DoD), responds to these emergencies.

Despite the heroic response, there were many shortcomings that could have been foreseen and avoided. The response at all levels of government, federal, state, local and individual, fell short in many aspects and this has sparked a great deal of controversy and calls for reform on many fronts. One such front that has garnered much public attention and intense government scrutiny is that of the Federal Government's acquisition and contracting response to Katrina, with particular attention on the response of FEMA.

FEMA faced an incredible acquisition and contracting task when Hurricane Katrina hit the Gulf States in August 2005. The scale of the disaster was unmatched in our nation's history and the small organization's responsibilities were staggering. Acquisition and contracting is a fairly straightforward discipline, but it is heavy with rules and regulations that hinder fast and effective execution even in normal operations. Even with the allowed exceptions to the rules, the scale of Katrina multiplied that difficulty exponentially, since so many of the resources and even the suppliers themselves were devastated and hindered by destroyed transportation and communications infrastructure.

Considerable public scrutiny has been focused on this supposedly inadequate, misdirected, and slow response to the acquisition needs required for responding to the aftermath of hurricane Katrina. This seemingly failed response quite possibly cost the federal government billions in wasted taxpayer dollars and has affected the livelihood of thousands. Analyzing what went wrong and examining available acquisition concepts, organizations, processes, and technologies that could be leveraged for future disaster responses is the focus of our Masters of Business Administration (MBA) Project.

B. PURPOSE AND OBJECTIVES OF RESEARCH

This report reviews and analyzes the Katrina response and investigates what went wrong and why, with emphasis on acquisition processes and disaster relief and response

contracting. We investigated acquisition and contracting initiatives within FEMA and other organizations to prepare recommendations so the government response to future disasters will not only be more effective, but also to ensure FEMA does not face another media disaster as well.

The project's product involves providing some proposed solutions to assist FEMA's acquisition mission, along with some recommended technologies for executing these solutions.

C. SCOPE, LIMITATIONS AND ASSUMPTIONS

This report focuses on the acquisition and contracting methods FEMA can use for immediate disaster response and providing for the basic health of survivors. The research reviews current procedures used in contracting for FEMA and other organizations. The differing methods are compared and analyzed based on FEMA's organization and goals.

This report is limited, mainly, to FEMA's and DHS's responsibility with disaster relief acquisition and contracting during disaster response, though the acquisition responsibilities of other Federal entities are discussed in as much as they were a participant, and regarding how they can fit into a FEMA acquisition strategy for future responses. The initiatives within FEMA and other organizations provide information for an appropriate rapid reaction strategy to respond during large disasters. This report limits the alternatives for contracting to the areas that major government activities currently implement and the initiatives that will be implemented.

This report limits focus to large scale disasters that quickly outsize the available local, regional, or state resources, but does not focus on pandemic type emergencies, such as the possible mutation and spread of the H5N1 avian flu⁴, as the containment and quarantine aspects of such an event would require contracting strategies beyond the scope of this project.

⁴ The H5N1 avian influenza A virus is a bird adapted subtype of the influenza A virus that is spreading across the world, originating from Southeast Asia. It can cause illness in humans and other animals, but is an epidemic in the avian world population. Many fear this "bird flu" can spread to epidemic or pandemic proportions in humans. Information from Wikipedia, [<http://en.wikipedia.org/wiki/H5N1>]. Accessed November 2006.

Our assumptions include that readers of this project have a basic understanding of general government organizational structure including our armed forces, DoD agencies and personnel. We also assume readers have a basic knowledge of the Federal Acquisition Regulations (FAR).

D. RESEARCH QUESTIONS

1. Primary Research Question

What alternatives are available to improve FEMA's acquisition processes for rapid reaction to large scale disasters within the United States?

2. Secondary Research Questions

- a. What Factors Hindered the Federal Government's Response to Hurricane Katrina, Including the Acquisition Response?*
- b. What Acquisition and Contracting Concepts, Systems, Tools, and Technologies are Available that Could Be Leveraged For Rapid Response to Future Disasters?*
- c. Which Technological Initiatives Should FEMA Pursue to Improve the Acquisition Process?*

E. RESEARCH METHODOLOGY

The research methodology used in this report includes a literature review of documents pertaining to Hurricane Katrina, FEMA contracting during disasters, and other agencies providing emergency contracting. This report investigates the Presidential Administration, U.S. Government Accountability Office (GAO) and Congressional Reports, as well as other literature associated with the response and we conducted interviews with personnel from FEMA, Defense Logistics Agency (DLA), the Joint Staff, U.S. Army Corps of Engineers (USACE), Naval Supply Systems Command (NAVSUP), and the Fleet and Industrial Supply Centers (FISCs).

F. ORGANIZATION OF MBA PROJECT REPORT

The organization of this MBA project includes: (1) an overview of the federal framework for emergency management, including the history, legislation and organizations, (2) a review of the current literature, including government reports and articles from reliable sources that critically analyze the acquisition response to Hurricane Katrina, (3) a review of alternatives for improving response to possible future disaster events, (4) an evaluation of existing acquisition organizations, systems, policies,

concepts, tools or technologies that could possibly be leveraged to optimize disaster relief and response acquisition, (5) an attribute analysis of selected technological alternatives to determine priority for implementation, and (6) recommendations for improving the acquisition processes for rapid reaction to large scale disaster within the U.S..

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II. DISASTER RESPONSE PRIMER: WHO IS IN CHARGE?

The [Katrina] storm involved a massive flood, a major supply and security operation, and an evacuation order affecting more than a million people. It was not a normal hurricane – and the normal disaster relief system was not equal to it. Many of the men and women of the Coast Guard, the FEMA, the U.S. military, the National Guard, and State and Local Governments performed skillfully under the worst conditions. Yet the system, at every level of government, was not well-coordinated, and was overwhelmed in the first few days.

- President George W. Bush, September 15, 2005

A. OVERVIEW

This chapter provides a general overview of the United States Federal Government apparatus for emergency management and disaster response. A brief history of disaster response is presented, followed by a discussion of the guiding disaster response legislation, the Stafford Act. The chapter then outlines the roles and responsibilities of the two federal organizations primarily responsible for emergency management and disaster response, DHS and FEMA.

B. HISTORY

The first federal legislation concerning response to disasters occurred in 1803 in response to a New Hampshire town fire. Over the next hundred years, Congress would pass over 100 more acts to respond to fires, floods, earthquakes, hurricanes and other natural disasters. In the 1930s, the Reconstruction Finance Corporation provided for disaster loans. The Bureau of Public Roads was given authority for funding to repair roads and bridges damaged by natural disasters in 1934. The same year, the U.S. Army Corps of Engineers was granted authority to implement flood control projects under the Flood Control Act.⁵ These ad hoc legislations prompted other needs for greater cooperation between agencies.

The Department of Housing and Urban Development created the Federal Disaster Assistance Administration to manage federal response and recovery operations. But with

⁵ FEMA Website, *FEMA History*.

many catastrophic disasters in the 1960s and 1970s such as Hurricanes Carla, Betsy, Camille and Agnes; and earthquakes in Alaska and Southern California, more attention led to the passing of the National Flood Insurance Act of 1968 and the Disaster Relief Act of 1974. By this time, over 100 agencies had responsibilities for disaster response. Emergency response was fragmented and many programs were duplicated at state and local levels of government.

With the uncoordinated response systems and an increased threat of nuclear attacks and hazardous material spill response, in 1979, President Carter's executive order merged many of the civil defense and disaster response responsibilities into one single new agency – FEMA.⁶ The agency faced many disasters including contamination of the Love Canal, the Cuban refugee crisis, Three Mile Island's nuclear power plant incident, Loma Prieta Earthquake and Hurricane Andrew over the following years.⁷

FEMA's response in the first decade generally received praise for quicker responses to disasters than had been in the past. However, around 1990, FEMA's responses began to receive many criticisms. In particular, Hurricanes Hugo and Andrew drew much criticism for lackluster response and difficult bureaucratic procedures. Many critics blamed the excessive number of political appointees in the agency with no experience in emergency response - the agency had 10 times the number of political appointees as most other government agencies.⁸

The agency began a new transformation in 1993 with a disaster mitigation effort called "Project Impact" and with FEMA being elevated to a cabinet-level agency. These changes restored the agency's waning performance and reputation and proved successful in improving disaster response throughout the 1990's and the first part of the new century. One key example was the Nisqually earthquake in February 2001 where homes

⁶ U.S. Government Accountability Office, *GAO-06-746t – Testimony of William Jenkins*, 4.

⁷ FEMA Website, *FEMA History*.

⁸ Franklin, *The FEMA Phoenix*, 1995.

and schools were retrofitted with high-impact structural changes, requiring minimal disaster response. Unfortunately, though, “Project Impact” was discontinued after this earthquake due to decreased funding.⁹

After September 11, 2001 (9/11), the agency focused on national antiterrorism preparedness and its terrorism related disaster budget increased by billions. With the creation of DHS, FEMA then moved under the new department on March 1, 2003.¹⁰ Though the agency moved under DHS, FEMA initially retained its authority to operate as the agency administering the Stafford Act. The agency trains first responders, initiates mitigation activities and shares responsibility for preparing the nation for all disasters.¹¹

C. STAFFORD ACT

In response to Hurricane Katrina, President Bush declared a Major Disaster on August 29, 2005, authorizing the expenditure of disaster relief funds and the provision of federal resources to support relief efforts, pursuant to authority of the Robert T. Stafford Disaster Relief and Emergency Assistance Act.¹² The Stafford Act, as amended on October 30, 2000, is a major revision of the original Disaster Relief Act of 1974. The Stafford Act provides FEMA with the responsibility and authority to prepare for and to respond to disasters in the U.S. and its territories. It outlines the process that must be followed by local and state authorities prior to a request for declaration to the President and then details the actual Presidential Disaster or Emergency declaration process, both pre- and post-event.¹³

The Act also establishes Federal Coordinating Officers (FCOs), Joint Field Offices (JFOs) and Emergency Response Teams (ERTs) and outlines other aspects of the federal apparatus for response to and coordination of declared emergencies and disasters,

⁹ Franklin, *The FEMA Phoenix*, 1995.

¹⁰ FEMA Website, *FEMA History*.

¹¹ U.S. Government Accountability Office, *GAO-06-746t – Testimony of William Jenkins*, 6.

¹² FEMA, *Federal Register Notice 1603-DR*.

¹³ Bea, *Federal Stafford Act Disaster Assistance: Presidential Declarations, Eligible Activities, and Funding*, 2-5.

including the provision of assistance by other federal agencies¹⁴ The Act outlines the types of assistance that may be provided, depending on whether the event is declared a major disaster or an emergency and outlines the funding flow upon declaration. Generally, assistance provided under both types of declarations include emergency evacuation, rescue, shelter, feeding, and other immediate mass care needs, as well as critical infrastructure restoration and protection. The essential differences between these two declarations revolve around the scope in which these types of assistance are provided and the regulations surrounding their provision.¹⁵

The act charges the President, via the Director of FEMA, to prepare federal response plans for emergency preparedness within the agencies of the federal government and to coordinate with state and local authorities to plan for and respond to emergencies. As such, the act tasks the Director of FEMA to establish and head a task force including federal agencies, state and local governments, and the American Red Cross (AMCROSS) for coordinating disaster response and pre-disaster hazard mitigation programs across jurisdictions throughout the nation.¹⁶

It also encourages state and local governments to prepare and plan for disaster response at the local level and reinforces the expectation that state and local authorities provide the primary response for emergencies and disasters. To encourage such planning by state and local authorities, the Stafford Act provides robust provisions for grant assistance to state and local governments that show a proven ability to provide a comprehensive plan to conduct preparedness planning and mitigation efforts. In many cases, this includes grants for up to 75% of the costs. The Act also charges FEMA to work closely with these state and local governments in these planning and preparation efforts and may require submission of hazard mitigation or disaster preparedness plans as a product of the grant process.¹⁷

¹⁴ U.S. Congress, *Stafford Act*, sec. 302 to 306.

¹⁵ Bea, 3-9.

¹⁶ U.S. Congress, *Stafford Act*, sec. 204.

¹⁷ U.S. Congress, *Stafford Act*, sec. 201, 203, 322, 404.

One important provision of the Stafford Act, section 307, requires that preference be given “to the extent feasible and practicable” to local entities within the affected areas when contracting for services and resources required by the federal government during the response and recovery phases.¹⁸ Much debate has ensued since Katrina regarding the federal government’s adherence to this during the aftermath of Katrina, especially with regards to debris removal and technical assistance contracts for site preparation and hook-up of FEMA trailers.

D. DEPARTMENT OF HOMELAND SECURITY

With the change of government focus towards Homeland Defense after 9/11, the Bush Administration developed a new cabinet-level department, the DHS, to prevent terrorist attacks within the U.S., reduce our vulnerability to terrorism, and to minimize damage from attacks. DHS assumed all responsibilities under the Stafford Act and FEMA’s responsibilities became just one of four divisions at DHS, as the Emergency Preparedness and Response Directorate, and the primary focus became to protect the U.S. from terrorist activity.¹⁹ The new department merged 22 former agencies into one centralized department. All the agencies were required to change their structure to meet the new DHS regional chain of command and billions of dollars poured into the new department for terrorist preparedness.²⁰

The new department changed the focus and direction for FEMA. The agency no longer reported directly to the president, but instead to the Secretary of the DHS, who then became the President’s new disaster response contact.²¹ The DHS direction slowly removed functions from FEMA and absorbed these functions into other organizations within the department. When Michael Chertoff became Director of the DHS early in

¹⁸ U.S. Congress, *Stafford Act*, sec. 307.

¹⁹ White House Website, *Organization of the Department of Homeland Security*.

²⁰ White House OMB Website, *Department of Homeland Security*.

²¹ U.S. Congress, Senate report, 13-1.

2005, one of his top priorities was to reorganize the entire department (see Figure 1), which renewed focus on taking away FEMA's role for prevention and preparedness planning.²²

Though DHS claimed an "all hazards" approach, the new department clearly focused away from this "all hazards" approach and singled in on terrorism threats,²³ with three out of four new budget dollars going to the new department directly supported terrorism response. FEMA's budget was slashed and the pre-9/11 all hazards direction had been marginalized with the creation of the DHS.²⁴

²² In an interview with William Carwile (September 16, 2006), the Federal Coordinating Officer for Mississippi during Katrina and a leading figure in the federal government's response to every major disaster since Hurricane Andrew, he asserted that much of the re-organization at FEMA and DHS was due to personality conflicts between everyone else and Michael Brown, then director of FEMA.

²³ U.S. Congress, House of Representatives Report, *A Failure of Initiative*, 152.

²⁴ Glasser and White, *Storm Exposed Disarray at the Top*, A.01.

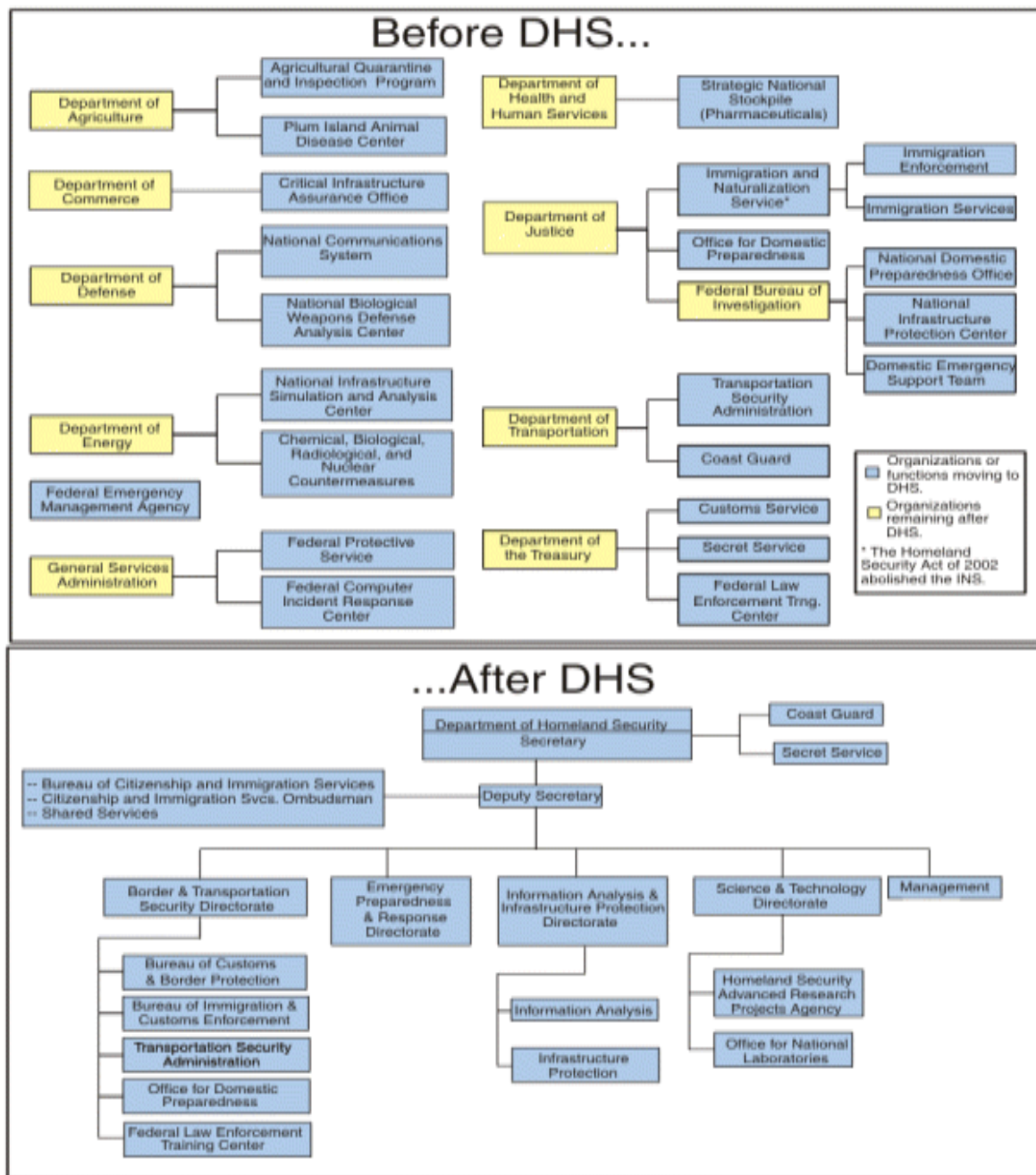


Figure 1. Government organization before and after the creation of the Department of Homeland Security.²⁵

²⁵ White House OMB Website, *Department of Homeland Security*.

E. FEDERAL EMERGENCY MANAGEMENT AGENCY

FEMA consists of over 2600 full time personnel and consists of four divisions and ten regions. Figure 2 shows the divisional structure and responsibilities. The ten regions work with state and local governments within the region to coordinate disaster mitigation and response. Figure 3 shows a break out of the ten regions' geographic boundaries, along with the location of each region's headquarters.

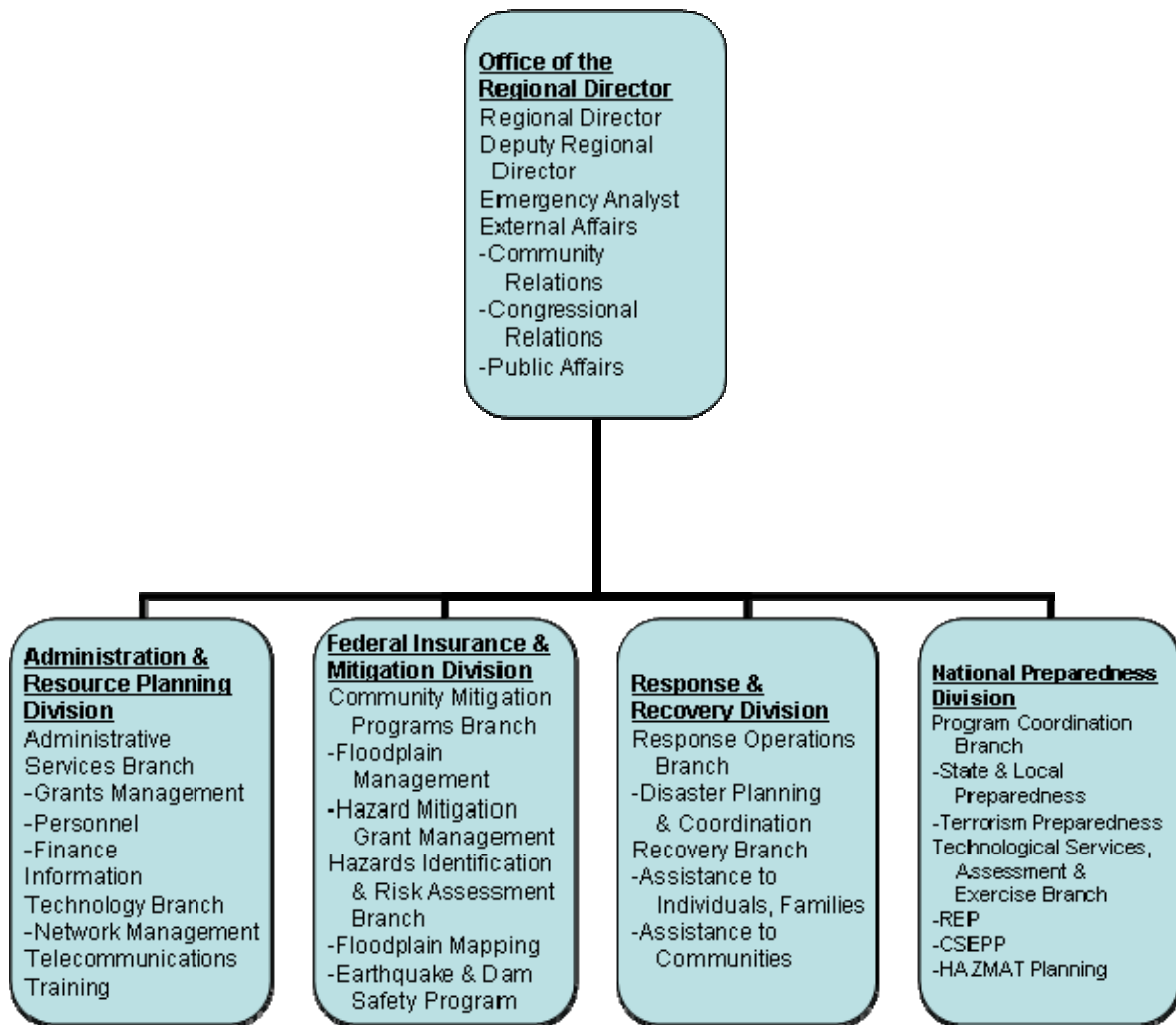


Figure 2. Federal Emergency Management Agency Divisions.²⁶

²⁶ FEMA Website, *Organizational Structure*.

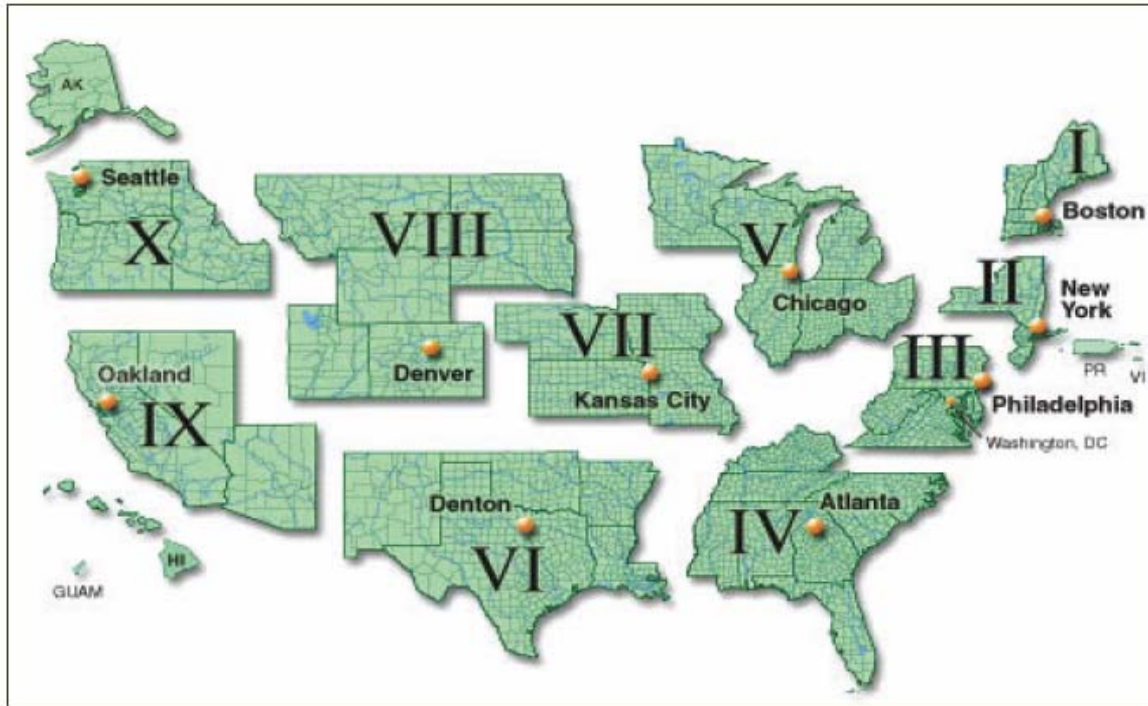


Figure 3. Federal Emergency Management Agency Regions and Regional Offices.²⁷

FEMA is the primary organizing activity during presidentially declared disasters and operates under the National Incident Management System (NIMS) and the National Response Plan (NRP), which were both restructured in 2004 after the formation of DHS. The NIMS provides a “nationwide template for all government levels and private organizations to coordinate preparation, prevention, response and recovery from all domestic disasters.” Homeland Security Presidential Directive Five (HSPD-5) requires the DHS to prepare and maintain the NRP to integrate a comprehensive plan for the structure and mechanics to respond to any events.²⁸ Thus, the NRP establishes an all-hazards plan and framework to implement the NIMS.

The NRP can be implemented for recovery from terrorist attacks, major disasters or other emergencies under any of the below circumstances:

²⁷ White House Report, *The Federal Response to Hurricane Katrina: Lessons Learned*, 16.

²⁸ U.S. Department of Homeland Security, *National Incident Management System*.

- A Federal department or agency acting under its own authority has requested the assistance of the Secretary of Homeland Security;
- The resources of State and local authorities are overwhelmed and Federal assistance has been requested by the appropriate State and local authorities;
- More than one Federal department or agency has become substantially involved in responding to the incident; or
- The Secretary of Homeland Security has been directed to assume responsibility for managing the domestic incident by the President.²⁹

FEMA has been the coordinating agency for the federal response since 1979, but since the creation of the DHS, the FEMA Director now reports to the Secretary of Homeland Security instead of the President from above as designated in the HSPD-5.

The Federal response is coordinated through the FCO (the Secretary of Homeland Security or delegated official) located at a JFO near the area affected. The coordination follows the Emergency Support Function (ESF) framework. The ESFs organize responsibilities for agencies and private entities as needed, depending on the response required. Table 1 shows the 15 functions and supporting organizations and table 2 lists the scope for each function.

	ESF	Primary Department or Agency
ESF #1	Transportation	DOT
ESF #2	Communications	DHS (IAIP/NCS)
ESF #3	Public Works and Engineering	DOD (USACE) and DHS (FEMA)
ESF #4	Firefighting	USDA (Forest Service)
ESF #5	Emergency Management	DHS (FEMA)
ESF #6	Mass Care, Housing, and Human Services	DHS (FEMA) and American Red Cross
ESF #7	Resource Support	GSA
ESF #8	Public Health and Medical Services	HHS
ESF #9	Urban Search and Rescue	DHS (FEMA)
ESF #10	Oil and Hazardous Materials Response	EPA and DHS (U.S. Coast Guard)
ESF #11	Agriculture and Natural Resources	USDA and DOI
ESF #12	Energy	DOE
ESF #13	Public Safety and Security	DHS and DOJ
ESF #14	Long-Term Community Recovery and Mitigation	USDA, DOC, DHS (FEMA), HUD, Treas, and SBA
ESF #15	External Affairs	DHS (FEMA)

Table 1. Emergency Support Functions and supporting agencies/organizations.³⁰

²⁹ Bush, *Homeland Security Presidential Directive 5*.

ESF	Scope
ESF #1 - Transportation	<ul style="list-style-type: none"> Federal and civil transportation support Transportation safety Restoration/recovery of transportation infrastructure Movement restrictions Damage and impact assessment
ESF #2 - Communications	<ul style="list-style-type: none"> Coordination with telecommunications industry Restoration/repair of telecommunications infrastructure Protection, restoration, and sustainment of national cyber and information technology resources
ESF #3 - Public Works and Engineering	<ul style="list-style-type: none"> Infrastructure protection and emergency repair Infrastructure restoration Engineering services, construction management Critical infrastructure liaison
ESF #4 - Firefighting	<ul style="list-style-type: none"> Firefighting activities on Federal lands Resource support to rural and urban firefighting operations
ESF #5 - Emergency Management	<ul style="list-style-type: none"> Coordination of incident management efforts Issuance of mission assignments Resource and human capital Incident action planning Financial management
ESF #6 - Mass Care, Housing, and Human Services	<ul style="list-style-type: none"> Mass care Disaster housing Human services
ESF #7 - Resource Support	<ul style="list-style-type: none"> Resource support (facility space, office equipment and supplies, contracting services, etc.)
ESF #8 - Public Health and Medical Services	<ul style="list-style-type: none"> Public health Medical Mental health services Mortuary services
ESF #9 - Urban Search and Rescue	<ul style="list-style-type: none"> Life-saving assistance Urban search and rescue
ESF #10 - Oil and Hazardous Materials Response	<ul style="list-style-type: none"> Oil and hazardous materials (chemical, biological, radiological, etc.) response Environmental safety and short- and long-term cleanup
ESF #11 - Agriculture and Natural Resources	<ul style="list-style-type: none"> Nutrition assistance Animal and plant disease/pest response Food safety and security Natural and cultural resources and historic properties protection and restoration
ESF #12 - Energy	<ul style="list-style-type: none"> Energy infrastructure assessment, repair, and restoration Energy industry utilities coordination Energy forecast
ESF #13 - Public Safety and Security	<ul style="list-style-type: none"> Facility and resource security Security planning and technical and resource assistance Public safety/security support Support to access, traffic, and crowd control
ESF #14 - Long-Term Community Recovery and Mitigation	<ul style="list-style-type: none"> Social and economic community impact assessment Long-term community recovery assistance to States, local governments, and the private sector Mitigation analysis and program implementation
ESF #15 - External Affairs	<ul style="list-style-type: none"> Emergency public information and protective action guidance Media and community relations Congressional and international affairs Tribal and insular affairs

Table 2. Emergency Support Functions and scope of each function.³¹

³⁰ White House Report, 16.

³¹ U.S. Department of Homeland Security, *National Response Plan (NRP)*, 12.

The Secretary of Homeland Security or delegated representative (the FCO) will implement the needed ESF's for a particular response. FEMA is the coordinating activity as seen under ESF #5 – Emergency Management; but FEMA is supported by many other organizations for other functions. For example, the U.S. Department of Transportation (DOT) is tasked to provide support for ESF #1 and the Department of Agriculture is responsible for support for forest fires.

F CHAPTER SUMMARY

This chapter presented a brief summary of emergency management within the U.S. Federal Government, including information on relevant historical background, legislation and federal organizations involved. This information provides a foundational knowledge base for understanding the federal response to Katrina and the ensuing problems, concerns, and issues that surfaced as a result, especially with reference to acquisition processes and disaster relief contracting. The following chapters present these issues, starting with chapter III, which provides a brief summary of the federal government's response to Katrina.

III. THE FEDERAL RESPONSE TO HURRICANE KATRINA

Hurricane Katrina is now designated as a category five hurricane. We cannot stress enough the danger this hurricane poses to Gulf Coast communities. I urge all citizens to put their own safety and the safety of their families first by moving to safe ground.

- President George W. Bush, August 28, 2005 ³²

A. INTRODUCTION

This chapter provides a brief summary of the major affects of Hurricane Katrina on infrastructure and support, and the federal response in general. It focuses mainly on the DHS, FEMA, and DoD responses. While the chapter discusses specific concerns regarding the DHS response, chapter IV provides more detailed discussion of FEMA's involvement and the concerns therein.

B. OVERVIEW: THE STORM

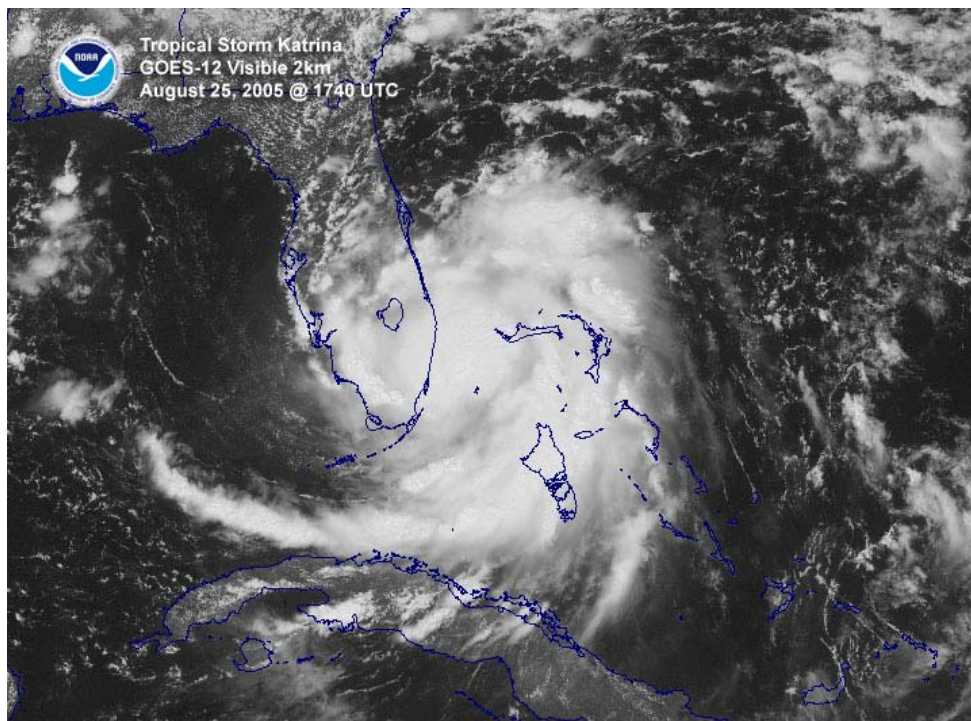


Figure 4. Tropical Storm Katrina on August 25, 2005.³³

³² White House, *News release: President discusses Hurricane Katrina, congratulates Iraqis on draft constitution*. (August 28, 2005).

On August 24, 2005, Tropical Depression 12 became a Tropical Storm and was named Katrina, the eleventh named storm of the 2005 hurricane season (see Figure 4 above). FEMA activated its Hurricane Liaison Team (HLT) to coordinate with the National Weather Service and state and local officials. The storm crossed southern Florida on August 26, 2005 as a Category 1 hurricane leaving a dozen deaths, over 1.4 million power outages, some severe flooding and an estimated \$2 billion of destruction in its path.³⁴

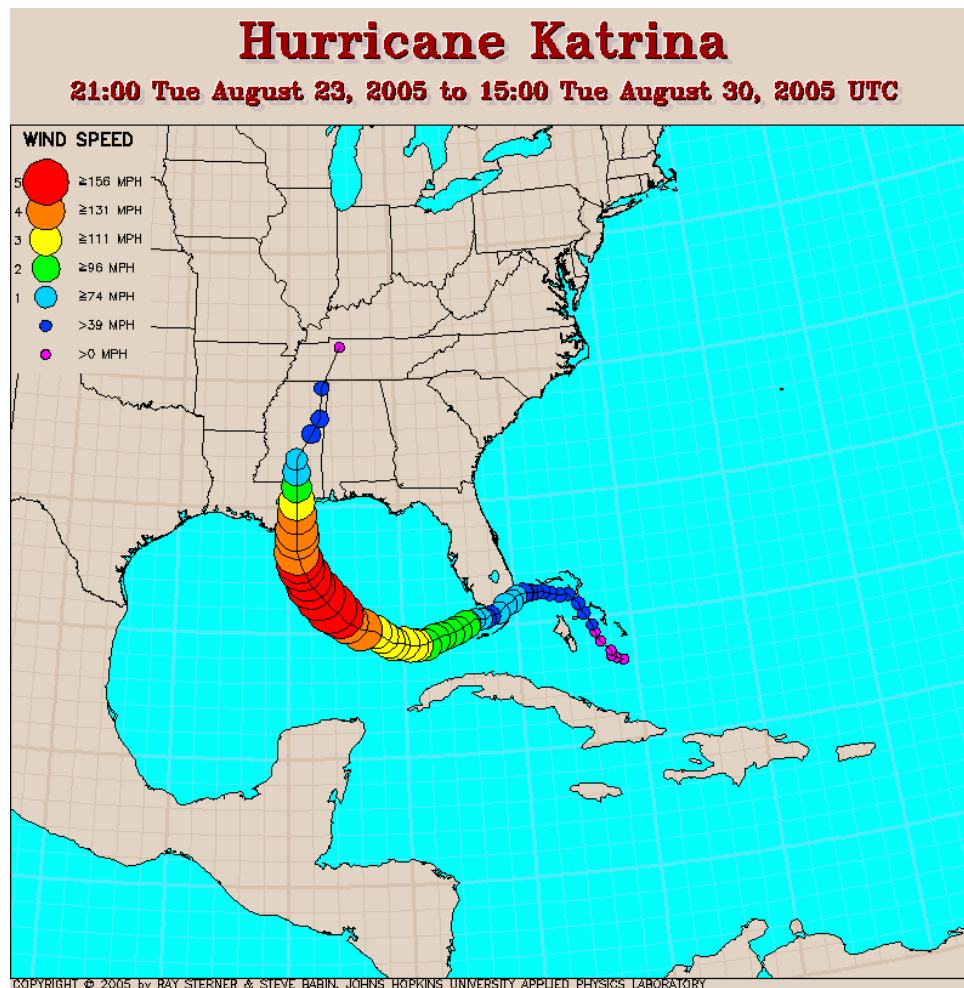


Figure 5. Hurricane Katrina path of movement.³⁵

³³ NOAA Satellite and Information Service website, (August 25, 2005).

³⁴ U.S. Department of Commerce, National Weather Service, *Hurricane Katrina Storm Report*, (September 1, 2005).

³⁵ U.S. Department of Commerce, National Oceanic & Atmospheric Administration website, (August 25, 2005).

The Gulf States activated their Emergency Operations Centers (EOCs) and the National Guards were activated in Louisiana and Mississippi on August 26, 2005. The storm strengthened into a category 3³⁶ and doubled in size while Louisiana activated the Emergency Evacuation Plan on the 27th. Figure 5 above shows the path of the storm. Shelters began opening throughout the region by the AMCROSS and Louisiana's Office of Emergency Preparedness. Mississippi deployed ERTs to coastal counties. The Louisiana and Alabama National Guards sent liaisons to coastal counties. FEMA activated the respective regions on full alert and implemented all 15 ESFs 48 hours before landfall in the Gulf.

On Sunday, August 28, 2005 (day before landfall), Alabama, Louisiana and Mississippi began requesting significant assistance from FEMA including food and water to the Superdome where over 10,000 people had gathered for shelter. Only about half of the Superdome supplies arrived before the weather prevented further delivery.³⁷ The AMCROSS decided to wait until after the storm passed to provide aid to the Superdome due to safety concerns of their staff.³⁸

The storm hit Louisiana at 6:10 a.m. on August 19, 2006. Storm surge waters rose up to 27 feet in Louisiana and Mississippi, flooding up to 12 miles inland. At least 1,330 people were killed and whole communities were destroyed.³⁹ President Bush declared the hurricane as "one of the worst natural disasters in our Nation's history."⁴⁰

There were 2.5 million customers in the three states without power, three million without telephone service, 1,477 cell phone towers were down along with radio and television stations. Hospitals and other key infrastructure were unusable. New Orleans'

³⁶ A category 3 storm contains winds between 111-130 miles per hour, generally sending a storm surge 9-12 feet higher than normal. Damage generally includes some structural damage to small buildings, damage to foliage, destroying mobile homes and flooding up to eight miles inland in areas less than five feet above sea level. Information taken from the U.S. Department of Commerce, National Weather Service website, [<http://www.nhc.noaa.gov/aboutsshs.shtml>]. Accessed June 2006.

³⁷ Norton, *U.S. Government response to the aftermath of Hurricane Katrina*, (September 1, 2005).

³⁸ U.S. Congress, House, *Testimony of Joseph C. Becker*, (December 13, 2005).

³⁹ White House Report, 33.

⁴⁰ White House, *News release: President outlines Hurricane Katrina relief efforts*, (August 31, 2005).

350 mile levee system was breached in several places and 80% of the city was flooded with up to eight feet of water.⁴¹ Receipt of this information by cognizant authorities was sporadic and very unclear at best over the next two days due to conflicting reports and the complete devastation of all communications systems.

C. DHS / FEMA RESPONSE

The amount of resources needed after the hurricane was more than anticipated and historically unmatched. Almost 250,000 people in shelters and the emergency responders relied on food, water, ice and other critical supplies sent by FEMA. The pre-positioning stocks proved inadequate and FEMA could not procure enough supplies fast enough to keep up with the incredible demand. Nonetheless, FEMA provided more supplies in the two weeks after Katrina than it provided to Florida for all of the previous year's hurricanes total needs.⁴²

In preparation for the Florida landfall, FEMA dispatched 100 truckloads of ice, 35 truckloads of food and 75 truckloads of water to staging areas in Georgia. With predictions of another landfall in the Alabama/Mississippi region, those states activated their EOCs for emergency response operations. FEMA dispatched 400 truckloads of ice, 500 of water and 200 of food to staging areas in Alabama, Louisiana, Georgia, Texas and South Carolina in preparation for the second landfall. This was the largest pre-positioning in the Federal history by the time Katrina hit landfall in the Gulf.⁴³ Exhibit 7 shows the emergency commodity positioning by FEMA in preparation for Hurricane Katrina's landfall.

FEMA deployed its Mobile Emergency Response Support (MERS) detachments and activated ERT-A (Emergency Response Team) and ERT-N⁴⁴ teams. In addition to

⁴¹ White House Report, 34-36.

⁴² Ibid., 44.

⁴³ Ibid., 23.

⁴⁴ FEMA has three ERTs (A, B, and C teams) that at least one is always on call and ready for deployment. ERT-N is designed as a national team.

the major staging of food, ice, water and tarps to the region, FEMA also began activating the National Disaster Medical System (NDMS), Disaster Medical Assistance Teams (DMATs) and Urban Search and Rescue (USAR) teams.⁴⁵

Despite this massive response before, during and after landfall, DHS and FEMA both proved incapable of responding to the degree required by the severity of the disaster. In total, the federal response, which these two organizations were to manage, was very uncoordinated and plagued by many planning, command and control and communications issues. Much concern points to DHS's failure to provide the broad federal oversight required by the National Response Plan (NRP). The NRP had only recently been promulgated (December 2004) and, though DHS wrote the plan, many in DHS and FEMA, including the DHS Secretary and the FEMA Director were extremely unfamiliar with implementing the plan.⁴⁶ Training on the plan had yet to effectively begin as well. This point in particular, has fueled a debate about why more experienced emergency management professionals were not in the DHS and FEMA leadership ranks.⁴⁷

There are also several concerns voiced in the after-action reports regarding why the DHS Secretary did not designate Katrina as an Incident of National Significance (INS) and implement the NRP Catastrophic Incident Annex (NRP-CIA) prior to landfall. Had he implemented the NRP-CIA, he could have used the annexes' authority to start pushing the resources and response capabilities into the target zone prior to landfall, bypassing the pull system whereby states must request assistance first. Concern also abounds why the Secretary did not convene the Interagency Incident Management Group (IIMG) prior to landfall, which would have brought the heads of the many federal agencies that would be involved in the response together to coordinate the push of resources.

⁴⁵ White House Report, 25-27.

⁴⁶ U.S. Congress, House Report, *A Failure of Initiative*, 146; Senate Report, 27-2; White House Report, 52-53.

⁴⁷ U.S. Congress, House Report, *A Failure of Initiative*, 132.

Many of the reports contest that these shortfalls at DHS and FEMA⁴⁸ exist because the NRP remains vague and unclear in many aspects, especially with regards to implementation and coordination of the Emergency Support Functions.⁴⁹ Indeed, many Federal Agencies had yet to put into place their own required emergency response plans, as required by the NRP and, thus, implemented their responsibilities without coordinating with DHS, FEMA or other organizations.⁵⁰ These command and control concerns have fueled a push towards revamping the NRP to provide for a clearer and vastly more unified incident command and response structure.⁵¹ While this area of study is ripe for continued elaboration and in-depth research, any further detailed analysis of the command and control lessons learned are beyond the scope of this project.

D. DEPARTMENT OF DEFENSE INVOLVEMENT

Logistically, FEMA pre-staged more supplies than for any other storm, but its efforts still did not come close to providing the level of support required. As a result, DHS implemented the National Response Plan (NRP) and FEMA issued mission assignments activating all 15 ESF functions to bring in other federal agencies to assist, including the Department of Defense (DoD). DoD resources and personnel subsequently played key roles in every aspect of the federal response to Katrina, especially with logistics and acquisition support.

FEMA attempted multiple times in recent years to upgrade its ability to manage and track logistics, but did not possess the staffing or the technology to support any large scale disaster. FEMA competed against the organizations it tasked for logistics support and quickly became overwhelmed. Constantly unknown and changing requirements compounded the logistics nightmare for the agency.⁵²

As a result, on September 3, 2005, FEMA requested that DoD assume all logistics operations in Louisiana and Mississippi with a \$1 billion obligation authority for

⁴⁸ FEMA's shortfalls are discussed in chapter IV of this report.

⁴⁹ White House Report, 53.

⁵⁰ Ibid., 53.

⁵¹ Ibid., 88.

⁵² U.S. Congress, Senate report, 23-1.

procurement, transportation and distribution of commodities for the Katrina response.⁵³ Four key organizations within DoD played major roles in the Katrina response: U.S. Northern Command (NORTHCOM),⁵⁴ the United States Army Corps of Engineers (USACE), the Defense Logistics Agency (DLA) and the U.S. Navy.

1. U.S. Northern Command

As the combatant commander assigned with responsibility for homeland defense, and heeding forecasts of a strong hurricane season, NORTHCOM began preparing for the Hurricane season on August 19, 2005, with the issuance of a Severe Weather Execute Order. Defense Coordinating Officers (DCOs) were dispatched to the Gulf Coast, military installations were alerted for the possibility of being used as staging areas and coordination efforts with FEMA were stepped up. As Katrina started to form, NORTHCOM initiated daily teleconferences with other DoD components and FEMA and alerted units of the possibility of deployment.⁵⁵

All these proactive steps were taken in preparation for receipt of requests for assistance per procedures outlined in the NRP. On Tuesday, August 30, 2005, realizing the magnitude of the event and frustrated at the lack of requests, NORTHCOM and DoD began to “lean forward” pressuring DHS and FEMA as well as pushing personnel, resources and Naval support towards the Gulf Coast in anticipation of eventual deployment.⁵⁶

Regarding the September 3, 2005 mission assignment for logistics support, U.S. Northern Command (NORTHCOM), immediately commenced validating the request and developing a picture, in “excruciating detail” of what resources FEMA had ordered into

⁵³ Request was made orally on September 1, 2005 and approved on September 3rd. U.S. Congress, Senate Report, 26-38 to 26-40.

⁵⁴ NORTHCOM is a DoD unified command providing command and control for homeland defense within the area of responsibility including air, land and sea of the continental US, Alaska, Canada, Mexico, Gulf of Mexico and approximately 500 miles of surrounding waters, established on October 1, 2002. Information from the NORTHCOM website, [http://www.northcom.mil/about_us/about_us.htm]. Accessed November 2006.

⁵⁵ U.S. Congress, Senate Report, 26-14 to 26-16.

⁵⁶ Ibid., 26-24 to 26-28.

the region.⁵⁷ It was at this time that NORTHCOM realized the paucity of the FEMA logistics system and began around the clock efforts to track down commodities shipments and the status of pending orders, often even calling truck drivers on their cell phones.⁵⁸ These near heroic efforts and constant hard work mapping the existing system and then coordinating the movement, ordering, and distribution of supplies by planners and virtually every member of the NORTHCOM headquarters staff paid off and the commodities situation was stabilized in both Louisiana and Mississippi. As a result, DoD never had to fully take over Katrina logistics operations, but rather provided the operational logistics and planning expertise necessary to stabilize the situation.⁵⁹

DoD's competency in logistics and operational planning have prompted some to call for the Department to take over disaster response,⁶⁰ or at least be designated the "lead agency" for areas such as logistics. Current sentiment, however, within the DoD, and echoed in the 2006 Quadrennial Defense Review (QDR)⁶¹ remains that the Department will remain a proactive partner,⁶² greatly strengthening response capabilities and lobbying for legislative funding and other changes to allow proactive responses, but will not "take over" these responsibilities.⁶³

2. U.S. Army Corps of Engineers

The U.S. Army Corps of Engineers (USACE) maintains responsibility as the lead agency for ESF Three: Public Works and engineering. The capabilities that USACE maintains readiness to provide under this include: temporary housing, temporary roofing, emergent infrastructure repair, critical public facility restoration, demolition, and

⁵⁷ U.S. Congress, Senate Report, 26-40.

⁵⁸ Interview with Lieutenant Commander Ed Pidgeon, NORTHCOM Logistics planner during Katrina, (September 14, 2006).

⁵⁹ U.S. Congress, Senate Report, 26-41 to 26-42.

⁶⁰ Ramos and Pereira, *Natural Disasters – A Military Option for Increased Responsiveness*, 31.

⁶¹ The Quadrennial Defense Review Report is a comprehensive examination every fourth year of the national defense strategy, force structure, force modernization plans, infrastructure, budget plan and other policies of the Department of Defense for the next 20 years, mandated by Title 10, Section 118 of the US Code. Information taken from the Department of Defense website, [<http://www.defenselink.mil/qdr/>]. Accessed November 2006.

⁶² U.S. Department of Defense, *2006 Quadrennial Defense Review Report*, 26.

⁶³ U.S. Congress, Senate report, 26-6.

structural inspection.⁶⁴ During Katrina, USACE's most urgent priorities were emergency levee repairs, the repair of the City of New Orleans massive dewatering pumps and equipment, and the ensuing dewatering of the city.⁶⁵

Part of the USACE disaster response and recovery mission also includes the provision of ice for emergent personal and institutional needs and the acquisition and management of contracted debris removal services. These two areas received a great deal of scrutiny in the aftermath of Katrina.

Due to lack of communication between FEMA and USACE, ice was incorrectly routed all throughout the country, not effectively distributed in some areas and over distributed in others. These organizations prepared to provide ice to full populations of citizens in stricken areas, only to later realize that many of these citizens had fled.⁶⁶

The USACE normally utilizes pre-positioned Indefinite Delivery/Indefinite Quantity (ID/IQ) and requirements contracts to respond to emergencies and disasters. These contracts are termed "Advanced Contracting Initiative" (ACI) contracts.⁶⁷ Ordinarily, these pre-positioned contracts prove invaluable, and they did during Katrina as well. However, the massive devastation of Katrina quickly overwhelmed the ACI's ability and new contracts for such things as debris removal had to be awarded without full and open competition.

The greatest controversy, though involves four \$500M competitively awarded contracts (22 proposals were received) awarded under expedited procedures.⁶⁸ The controversy involved the USACE's awarding the contracts without regard for the

⁶⁴ U.S. Army Corps of Engineers Public Affairs Office Website, *Corps Points*, (June 27, 2006).

⁶⁵ U.S. Army Corps of Engineers, *Katrina, the Corps of Engineers' response*, (August 30, 2006).

⁶⁶ U.S. Government Accountability Office, *GAO-06-746t – Testimony of William T. Woods*, 7.

⁶⁷ U.S. Army Corps of Engineers Website, *What is ACI?*, (August 21, 2006).

⁶⁸ U.S. Congress, House, *Testimony of Major General Don T. Riley*, (May 4, 2006).

Stafford Act local entity preference.⁶⁹ The Corps has since re-competed these contracts and is working to gain more involvement from local contractors on the Gulf Coast in ACI contracts.

USACE possesses a robust emergency response capability, involving pre-scripted mission assignments, detailed response planning in each of their major assigned areas, the ACI, deployable command and control capabilities, mission guides and many other resources, including disaster response experts.⁷⁰ Though there were other contracting issues faced by USACE during Katrina, continued focus to this degree along with incorporation of lessons learned should prove beneficial in future disaster responses.

3. Defense Logistics Agency

DLA's response to Hurricane Katrina primarily involved the sourcing, staging and transportation of over 30 million Meals, Ready-to-Eat (MREs), as well as the provision of 4.5 million gallons of fuel. In addition, DLA proactively managed emergent medical requirements to fully outfit the Military Sealift Command's hospital ship USNS COMFORT in preparation for deployment to New Orleans and provided large amounts of bottled water, cots, blankets and numerous other (military/commercial dual use) required commodities.⁷¹

The organization partnered quickly with FEMA after landfall to ensure the highest level of support possible. However, realizing that the ad-hoc nature of this partnership, though successful, was not conducive to proactive emergency response, DLA has partnered with FEMA to become one of the primary providers of supply chain logistics and contracting support for FEMA in future disasters. In support of this initiative, DLA personnel have engaged FEMA in planning and exercise efforts, drafted an interagency agreement outlining how this support will be implemented and created a mobile logistics support capability in the form of a deployable depot, known as the DLA Deployable Depot (DDX) and based out of Defense Distribution Center Susquehanna, Pennsylvania (DDSP). The DDX is capable of standing up a fully functional receiving

⁶⁹ U.S. Congress, House, *Testimony of James Necaise*, (May 4, 2006).

⁷⁰ U.S. Army Corps of Engineers Public Affairs Office Website, *Corps Points*, (June 27, 2006).

⁷¹ U.S. Defense Logistics Agency Website. *DLA support to Hurricane Katrina relief efforts*.

and distribution hub in a large parking lot or other lay-down area quickly after a disaster. Permanent liaisons have also been established between DLA and NORTHCOM to further planning efforts.⁷²

Per ESF One, the DOT maintains responsibility for contracting movement of resources during a disaster. Managing and contracting complex material movement networks is not a core competency of DOT and this became readily apparent during Katrina, as there was no asset visibility of resources en-route or at destinations. Recognizing this, NORTHCOM and DLA sought and received approval for DLA to manage the resource transportation logistics. This allowed some measure of visibility and finally started to improve commodity distribution. DLA has since engaged FEMA to develop a fully operational transportation management system for future disasters.⁷³

4. U.S. Navy

The U.S. Navy dispatched an aircraft carrier, an Expeditionary Strike Group⁷⁴, several other amphibious ships, a hospital ship, a mine countermeasures ship, a Construction Battalion (SEABEE), and a salvage and rescue ship to assist after Katrina landed. The ships brought supplies, provided command and control for FEMA and conducted search and rescue during the aftermath.⁷⁵ The deployment of 2,800 SEABEES was the second largest peacetime deployment in the United States. They cleared over 200 miles of roads, delivered 170,000 gallons of fuel and water, repaired over 90 schools, restored utility services, delivered food, and removed 3,500 tons of debris.⁷⁶

With respect to contracting, the U.S. Navy generally did not coordinate support with FEMA or other organizations. All support for the Navy forces and ships was

⁷² Interview with Lieutenant Colonel Dennis Carr, DLA Defense Logistics Operations Center, (July 17, 2006).

⁷³ U.S. Congress, Senate report, 24-41 and LtCol Carr interview.

⁷⁴ An Expeditionary Strike Group is a set of amphibious landing ships, formerly known as an Amphibious Ready Group, added with strike capability ships such as a cruiser, destroyer, frigate and fast-attack submarine. This structure provides more strike capabilities than our traditional Carrier Battle Groups, providing twice as many "Strike Groups" with Carrier Strike Groups and ESGs. Information received from Global Security website, [<http://www.globalsecurity.org/military/agency/navy/esg.htm>]. Accessed November 2006.

⁷⁵ Miles, *More active, guard troops join Katrina response*, (September 3, 2005).

⁷⁶ U.S. Navy, *Navy Seabee Katrina Relief Effort Fact Sheet*, (September 19, 2005).

brought from other locations via ships or contracted locally through Navy contracting sources. The Navy competed for the same resources as FEMA and other agencies without overall coordination through FEMA.⁷⁷

E. CHAPTER SUMMARY

This chapter discussed the federal response to Hurricane Katrina, focusing on DHS, FEMA and DoD. It also briefly outlined shortcomings in the DHS's response, including inadequacies in the NRP and the failure of the DHS leadership to utilize certain provisions of the NRP to produce a more proactive, agile response.

However, many of the shortcomings with the FEMA disaster relief acquisition and contracting response stem from systemic problems and issues throughout FEMA that must be addressed before any acquisition and contracting improvements can be realistically expected. To be sure, almost every practice on the contracting "DON'T GO THERE" list was encountered as poorly trained and resourced acquisition professionals struggled to procure lifesaving supplies and services. Again, though, these are merely symptoms of deeper, more endemic problems and issues that must be addressed before acquisition and disaster relief contracting at FEMA can be expected to improve.

Chapter IV addresses several of the most critical problems and issues that must be addressed.

⁷⁷ Interview with Lieutenant Commander Chris Parker, Naval Supply Systems Command Code 02 Staff, (July 17, 2006).

IV. WHAT WENT WRONG?

A. OVERVIEW

FEMA is a small organization with a huge responsibility to ensure everything works correctly and efficiently during times when correctness and efficiency are nonexistent. The organization has been criticized by the public media and Congress for its handling of the Katrina response from command and control difficulties to the contracting methods used and the contract award process. FEMA's difficulties in acquiring emergency supplies, commodities and services, along with managing a coordinated acquisition response across the Federal Government is the general theme throughout this project.

This chapter presents the data regarding reported shortfalls with the federal response to Katrina. While many issues abound throughout the myriad organizations involved in the response, the authors focus primarily on FEMA and, to an extent, on DHS since the primary coordination responsibility resided within these two organizations.

The chapter begins with a strategic analysis of FEMA, briefly touching on how several organizational structures, command and control and other issues hindered the organization's acquisition and contracting response to Hurricane Katrina. Then it pulls out the most critical of these issues, such as funding, the acquisition workforce and supply chain shortfalls, and discusses them in further detail.

B. STRATEGIC ANALYSIS OF FEMA AND IT'S RESPONSE TO KATRINA

1. What Went Wrong at FEMA?

FEMA mounted the largest deployment of personnel and resources in the organization's history. As previously mentioned, the work of FEMA employees and everyone involved has been characterized as nothing short of extraordinary, and, to be sure, many things can and do go wrong when a catastrophe strikes and the response called for is immense and immediate. The important issue is whether all involved then take stock and learn from these mistakes and take measures to prevent them in the future.

This learning and growth process, as evidenced by the large amount of media attention and scrutiny, began in earnest shortly after Katrina's landfall. The results of this

process are now emerging from many organizations in the state, local and Federal governments. Particularly, the White House, the Senate and the House of Representatives have recently released their Katrina “lessons learned” reports. These reports cover in great depth the many shortfalls and provide recommended solutions. From these three reports, especially, several main themes emerge with respect to FEMA's shortcomings in responding to Katrina.

a. Inadequate Command and Control

The basic building blocks for command and control at FEMA either did not exist or were outdated. According to William Carwile, the FCO for Mississippi, disaster response doctrine had not been developed in over four years.⁷⁸ Along with doctrine, no operational planning had occurred to align a FEMA response with the NRP.⁷⁹ Standard Operating Procedures (SOPs) were characterized by all three of the reports as either non-existent, under development, outdated or mis-aligned to the NRP. Critical response personnel at both FEMA and DHS lacked critical working knowledge of the NRP, the NIMS and ICS. As well, the major restructuring of FEMA, as a result of its realignment under DHS in 2003, resulted in a lack of clarity in both organizations regarding roles and responsibilities and basic response procedures and this greatly contributed to the inefficient and inadequate response. No one, up or down the chain of command, had any clear guidance or training for crafting an effective disaster response.

b. Underdeveloped and Inadequate Response Capabilities

FEMA does have a well designed system of response teams to respond to disaster events.⁸⁰ These include: ERT-N, DMAT, USAR, Federal Incident Response Support Teams (FIRST) and a host of others. The problem lies in that these teams are under-funded, under-manned, under-equipped, under-trained, or non-existent. For example, while the NRP calls for four ERT-N of about 125 to 175 personnel each, only two existed during Katrina and they were composed of only about 25 personnel per

⁷⁸ U.S. Congress, Senate report, 14-11.

⁷⁹ White House report, 53.

⁸⁰ U.S. Congress, Senate report, 14-8 to 14-11 and House Report, 158.

team.⁸¹ The ERT-N sent to Katrina was newly formed and had not trained. Hiring for FIRST teams had only begun in the summer of 2005 and there were no teams yet in existence. These are the “rapid deployers” of FEMA with the mission of being the first on the ground. This story repeats itself over and over for each type of team. Of greatest concern is the severe lack of training opportunities provided. Finally, the surge workforce for FEMA, the current cadre of Disaster Assistance Employees (DAE), consists of only about 4000 individuals, mostly retired personnel, which have only a 40 to 50 percent availability rate; and are, for the most part, ill trained and ill suited to the task.⁸²

c. Personnel Shortages

At the time Katrina hit, FEMA had over 500 vacant positions and had been working with upwards of a 20% vacancy rate across the organization for the past three years.⁸³ Further, many critical leadership positions remained unfilled because the incumbents either reached retirement age or left due to low morale.⁸⁴ The core cadre of disaster response and emergency management corporate knowledge had eroded rapidly in the last four years. Remaining personnel were forced to work longer and deploy more often to make up these shortfalls, further decreasing morale.⁸⁵ In addition, they were receiving almost no training on core skill sets needed for disaster response due to funding shortfalls. Not only was FEMA chronically understaffed, they were also not given opportunities to become adequately equipped with skill sets to perform. This caused large manning shortfalls during the Katrina response that necessitated the recruiting of U.S. Forest Service and City firefighting personnel from across the nation to fill critical leadership positions at the county and city levels in several key areas of the Katrina strike zone.⁸⁶ As well, the completion of the Incident Management Handbook had yet to be

⁸¹ U.S. Department of Homeland Security, *National Response Plan*, 40.

⁸² U.S. Congress, Senate report, 14-9.

⁸³ *Ibid.*, 14-7.

⁸⁴ U.S. Congress, House report, 157.

⁸⁵ U.S. Congress, Senate, *Testimony of William Carwile*, (December 8, 2005).

⁸⁶ *Ibid.*

completed as of August 2005 due to lack of personnel.⁸⁷ These personnel shortages become a compounded and complex problem when viewed in the light of the many calls to either strengthen or greatly increase the size of FEMA to allow effective disaster response or to just disband the organization all together.

d. Inadequate Acquisition and Logistics Systems

Acquisition. The personnel shortage cuts across many areas of FEMA compounded or caused many other difficulties. FEMA's acquisition and contracting workforce totals only 36 personnel, 65% of the authorized 55 full-time employees (FTEs) and only 28% to 30% of what many recommend as a minimum of 100 to 125 FTEs just to manage workload in any given year, with many more required for incident response.⁸⁸ These manning shortfalls directly caused many of the contracting issues related to Katrina. Faced with the urgent needs brought about by this storm, FEMA issued over 50% of its contracts over \$500,000 under “other than full and open competition” conditions. Many contracts were not even awarded on paper at all. Companies were just told to ship or provide the service and send the invoice to FEMA.⁸⁹ Four of the largest contracts together valued at over \$1.5 billion were awarded without any competition to four companies that they were currently in negotiations with to manage the life cycle of temporary housing facilities.⁹⁰ FEMA's lack of ability to effectively manage the acquisition process and the negative press towards contractors it generated will likely also affect the effectiveness of future responses. As the House report puts it, “The intense public scrutiny could limit the willingness of private sector organizations to offer assistance during future disasters.”⁹¹

Logistics. FEMA's logistics system completely lacks Asset Visibility. With this system, there is no way of knowing where ordered material is in the supply and transportation chain or if it has been received and utilized effectively at the required

⁸⁷ U.S. Congress, Senate report, 14-7.

⁸⁸ Ibid., 14-11.

⁸⁹ U.S. Congress, House report, 330.

⁹⁰ U.S. Congress, House, *Testimony of Matt Jadacki*, (May 4, 2006).

⁹¹ U.S. Congress, House report, 337.

location.⁹² Lack of robust distribution skills and capabilities also severely hampered the Katrina effort, even though there large amounts of basic necessities staged throughout the region (see Figure 7). On a micro-level, when material arrived at any given staging point, there was no organized system for matching it to a need. On a macro-level, mechanisms for other agencies and companies to provide/donate logistics, material support and assistance were haphazard and ineffective.⁹³

e. FEMA's Organizational Positioning

Four phases make up the cycle of Integrated Emergency Management (IEM): Preparedness, Response, Recovery and Mitigation. When FEMA officially became a part of DHS in 2003, DHS moved the preparedness mission out of FEMA and into a new Preparedness Directorate. According to many experts at FEMA, and at other Emergency Management organizations, all four phases must be carried out in an integrated fashion to be effective.

In order for FEMA to work effectively with regional, state, and local first responders during a disaster, they have to work with, guide and train with them on an ongoing basis before the disaster strikes. The preparedness phase is where this coordination takes place. Taking this function out of FEMA left the organization without an effective vehicle for working with these critical stakeholders.⁹⁴ Placing FEMA under DHS did (and still does) make sense, but many of its critical resources, functions, budgets and authorities were stripped or transferred to other DHS directorates. DHS's prime focus on terrorism and lack of attention to an “all-hazards” disaster preparedness approach further decreased FEMA's ability to respond during Katrina.⁹⁵

⁹² White House report, 56.

⁹³ Ibid., 44-45.

⁹⁴ House report, 151, but discussed in almost every major “Lesson's Learned” and GAO report on this subject.

⁹⁵ Ibid.

f. Other Challenges

- Unqualified Senior Leadership: A majority of the senior leadership at FEMA were political appointees with no emergency management experience, including the Director during Katrina, Michael Brown, and his Chief of Staff, Patrick Rhone.⁹⁶
- Budget Shortfalls: When FEMA was moved into DHS, several “taxes” were imposed on the organization as part of its inclusion in the department. Arguments for the legitimacy or illegitimacy of these cuts and transfers provide compelling support for both sides of the argument. What proves itself clear, though, is an average resulting decrease of 15% in FEMA's discretionary spending accounts since joining DHS and an increasingly difficult bureaucratic process to request funding. This process hampered the implementation of critical planning, training, and preparedness initiatives that would have enhanced the response to Katrina and contributed significantly to the many other shortfalls identified thus far.⁹⁷
- Communications: While FEMA did possess and preposition MERS at each state's EOC and elsewhere (unfortunately not in New Orleans, though), the size of the devastation required much more capability to be in place.⁹⁸ Communications problems affected the entire response, not just FEMA's response. Lack of interoperability between federal, state, and local communications systems, coupled with the massive destruction of the Gulf region's communications infrastructure, and made coordinating the response inefficient, far less effective and much slower.⁹⁹

As these shortcomings overwhelmingly evidence, FEMA was found lacking not so much in their response to Katrina as in their lack of preparedness to effectively respond. This theme is repeated on the federal, state, local, and regional levels throughout these reports and many others. We remain, as the Senate report's title so effectively puts it, “A Nation Still Unprepared.”

Interestingly, FEMA recognized their ill equipped state and quite often lobbied stake-holders repeatedly for the resources and organizational authority to

⁹⁶ U.S. Congress, Senate report, 14-4.

⁹⁷ U.S. Congress, Senate report, 14-6 and House Report, 156.

⁹⁸ U.S. Congress, House report, 168-169.

⁹⁹ White House report, 55-56.

overcome these barriers and shortcomings. Why was it then that they were unable to do so? While there is no single answer to this question, it bears a deeper look. We suggest that one possible reason lies in the influence of FEMA's stakeholders upon the organization and the strong effect that these stakeholders quite possibly had in creating a culture bound by the forces of organizational inertia.¹⁰⁰

2. FEMA and Its Stakeholders

In a May 4, 2006 interview with Ms. Deidre Lee, the new Deputy Director for Operations at FEMA (appointed in April 2006, seven months after Katrina), she suggested that many of the issues beleaguering FEMA stem from the organization's "failure to manage expectations."¹⁰¹ She suggested that FEMA failed to interact with its stakeholders in a way that both apprised state and local emergency management, first responders and victims of FEMA's mission, capabilities, and limitations and let DHS know the gravity of the organization's unprepared state. While there is ample evidence that FEMA frequently discussed their lack preparedness with people at DHS and the White House, there remains some question with regard to the tenacity with which they pursued this if they were unsuccessful. Though, this too might be able to be blamed on the lack of qualified leadership, the lack of personnel and the many other issues discussed above.

The framework matrix in Figure 6 provides a good tool for presenting FEMA's current, post-Katrina stakeholders, characterizing their influence on the organization and touching on what FEMA can do to manage these relationships.

¹⁰⁰ Meyer and Zucker, *Permanently Failing Organizations*, 23-25.

¹⁰¹ Telephone Interview with Deirdre Lee, FEMA Chief Acquisition Officer, (May 4, 2006).

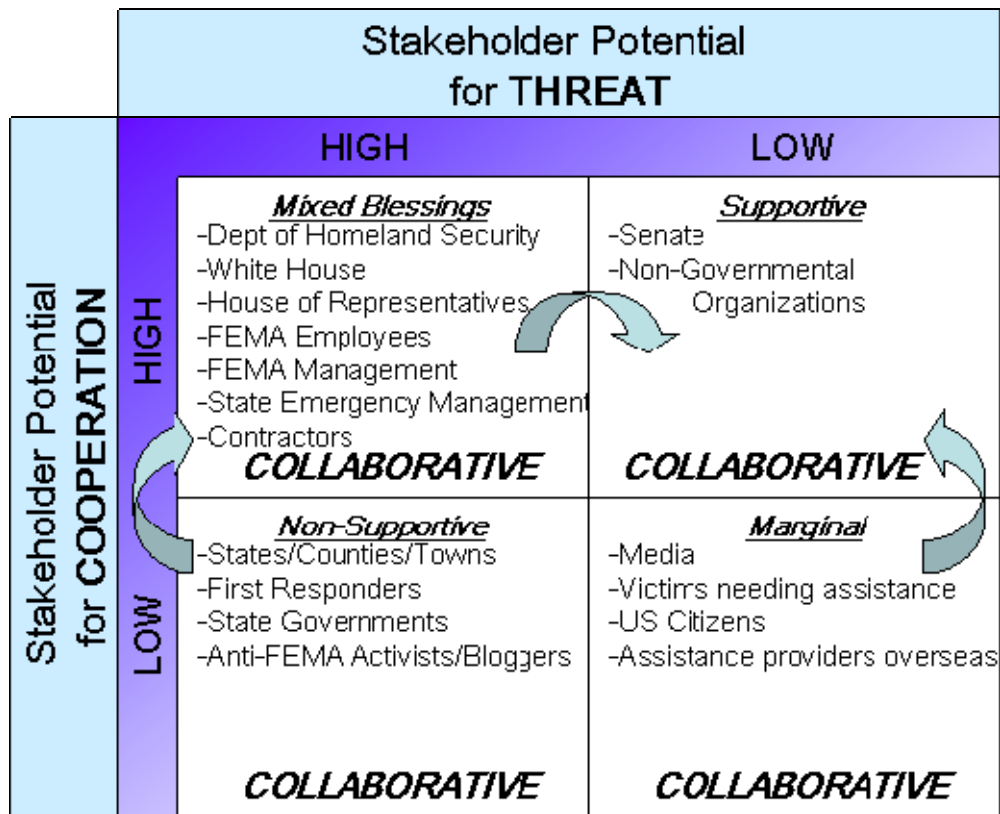


Figure 6. Diagnostic typology of FEMA's stakeholders.¹⁰²

- Mixed Blessing:** Mixed blessing stakeholders consist of those that have both the high potential for threat and for cooperation. These are basically organizations that have both a lot of power over FEMA and a vested interest in the organization's performance. The most obvious of these would be the Department of Homeland Security. Since DHS controls the main resources required by FEMA to alleviate its shortfalls, namely funds, authority and a large pool of manpower and skill sets, FEMA's leaders need to foster a strong, cooperative relationship with the DHS. They should aggressively make the case for stronger support and a larger resource base and "sell" the other organizations within DHS on the capabilities FEMA can 'bring to the fight' if given these resources. This is termed within the framework as the *Collaborative* strategy.

¹⁰² In the 1991 Academy of Management Executives white paper entitled Strategies for Assessing and Managing Organizational Stakeholders by Savage, Nix, Whitehead and Blair, a framework for assessing organizational stakeholders is presented. The framework divides stakeholders into four broad categories, Mixed Blessing, Supportive, Non-Supportive and Marginal and then presents strategies for managing and then transforming relationships with stakeholders. Where each stakeholder falls depends on the stakeholder's potential for threat or potential for cooperation.

- **Supportive:** Supportive stakeholders have high potential for cooperation and pose a low threat. These stakeholders may or may not have a large amount of power to influence the organization. In the post-Katrina environ, the United States Senate seems to be the organization's strongest advocate, judging from the tone of the Senate's Katrina report. While the report does call for “abolishing” FEMA, the alternative spelled out is basically just a re-naming of the organization to the National Preparedness and Response Authority (NPRA), restoring its advisory power and reporting relationship to the President and re-aligning the preparedness function back under the organization.¹⁰³ To be sure, much more is involved, but this summarizes the fundamental changes. FEMA should work hard to nurture this relationship and similar relationships, such as those with Non-Governmental Organizations (NGOs), and *involve* these stakeholders in this transformation process.
- **Non-Supportive:** Non-Supportive stakeholders are those with a high potential for threat and a low potential for cooperation. They may consist of major dissatisfied customer groups or activists against the organization that could possibly possess a lot of power to marginalize the organization through non-use of the offered services or publicly decrying the organization's effectiveness. In FEMA's case, this consists mainly of the state and local governments, especially in Louisiana, and the first responders who felt ill served by FEMA's efforts during Katrina. When discussing FEMA's “failure to manage expectations,” this is predominantly the audience that Ms. Lee was referring to. FEMA should seek to educate these groups on the role that FEMA was intended to play and remind them of their own responsibilities under the NRP. While the framework terms this a *defend* strategy, *educating* seems a more appropriate and effective strategy.
- **Marginal:** Marginal stakeholders possess a low potential for threat or for cooperation and may typically include groups that either do not have a vested interest in either or lack the power to influence. In FEMA's case, the most critical of these stakeholders is probably the victim in need. However, the most pressing is probably the media. The media's lack of a vested interest in either threatening or cooperating with FEMA revolves around the desire to report the news that will garner the greatest audience. FEMA should take advantage of this very key trait and aggressively steer the media towards a more supportive role. By seeking to *educate* (rather than just *monitor*) the media regarding FEMA's intended, desired future role and the challenges facing the organization, FEMA could possibly use the media's ability to sway public opinion as an effective strategic communications tool.

¹⁰³ U.S. Congress, Senate report, Foundational Recommendation #1.

Here are two final notes on stakeholders. First, Katrina very much put FEMA's shortcomings in the spotlight. A great deal of angst towards FEMA remains among all stakeholders, even the most supportive ones. Thus, classifying each one proved a rather tentative science. The line remains very thin, especially with marginal stakeholders such as the media. Second, and as a result, FEMA's ideal strategy should be to not only manage these relationships, but also to aggressively work at transforming them into more positive ones (see Figure 6 arrows).¹⁰⁴

3. Organizational Inertia

Organizational inertia has brought FEMA almost to a grinding halt. FEMA's failure to actively manage its stakeholder relationships may have contributed significantly to its ineffective response to Katrina and to the relatively negative reputation that the organization now possesses. A more aggressive, pro-active and collaborative approach from the onset of the changes that began with FEMA's inclusion in DHS would have served the organization far better.

Instead, FEMA's leadership complacency led to its many stakeholders, especially DHS, managing, and thus defining, FEMA's interactions with its stakeholders. The end result is a strong organizational inertia that has made course changes at FEMA not only difficult, but almost impossible. FEMA is now, to borrow a familiar Navy term, “dead in the water.”

To be fair, FEMA's Director did play the role of the “lone voice in the desert,” calling often for change and more resources. While some effort towards creating a plan did begin in January 2005, the business cases that DHS required were slow in coming. They were only partially complete by the time Katrina hit.¹⁰⁵

Not much evidence exists, though, that anything like this was contemplated early on, at the onset of the reorganization process, to lead the organization through the

¹⁰⁴ Savage, et al., 71.

¹⁰⁵ U.S. Congress, Senate report, 14-8.

changes. An objective assessment, creation of a strategy to address the highlighted resources, manpower and placement concerns and an aggressive follow-thru would have markedly changed the outcome.

This discussion on organizational inertia at FEMA thus far provides a general, though highly revealing, insight into FEMA's sufferings from this organizational malady. Table 3 below relates organizational inertia at FEMA to the two specific types of inertia, cognitive and action, each type's main tenets and how these affected FEMA as well.¹⁰⁶

Cognitive Inertia	Action Inertia
<ul style="list-style-type: none"> - <u>Framing Effects:</u> FEMA got "locked in" to the small, underdog organization mentality due to years of poor resourcing of their mission. This became even more pronounced after FEMA's move into DHS and the subsequent changes. This, in turn locked in expectations of FEMA's stakeholders. - <u>Analogy Abuse:</u> "Katrina will be like all the rest. Let the requirements flow up from the first responders." Unfortunately, Katrina completely overwhelmed first responders. 	<ul style="list-style-type: none"> - <u>Sticky Routines:</u> Reactive versus a Proactive approach. Let the requirements flow up from the state and local levels. No standard operational doctrine and few coherent SOPs led management to find one way of doing it and tacitly sticking to what they knew, regardless of effectiveness. - <u>Leadership Failures:</u> No skills alignment. Top leadership executives were political appointees with zero emergency management experience.

Table 3. Organizational inertia at the Federal Emergency Management Agency

In summary, FEMA's organizational inertia, especially its "sticky routines" very possibly resulted from the consequences of its falling victim to divergent interests among its many stake-holders. In trying to please all, they pleased none and became ineffective

¹⁰⁶ Gavetti, *Strategy Formulation and Inertia*, 1-11.

in the process.¹⁰⁷ FEMA's critical responsibilities, instead, require it to quite proactively manage these stakeholder relationships and expectations rather than allow such divergent goals to define its mission.¹⁰⁸

C. FUNDING

When the authors first started researching the federal response to Hurricane Katrina, it was initially thought that disaster funding was an area of great concern. However, research conducted through many interviews and literature reviews, leads the authors to conclude that departmental funding, or the lack thereof, at FEMA played a very large role in agency's inadequate response.

1. FEMA Funding

Subsequent to FEMA being brought in under the DHS umbrella, the agency's funding fell in steep decline. Its budget base was cut by 15% almost immediately after coming under DHS and then several "assessments," with various reasons given by DHS, totaling \$170 million over the 2003 and 2004 fiscal years were charged against FEMA's budget. In addition to funding cuts, funding requests for badly needed catastrophic planning were denied.¹⁰⁹ After the preparedness function was moved out of FEMA, preparedness and mitigation grant funding was also cut for non-antiterrorism related projects.¹¹⁰

These severe budget issues wreaked havoc on FEMA's capabilities in just about every facet of the agency's operations. Badly needed supply chain improvements were shelved and personnel shortages spiraled out of control throughout the organization, especially in the acquisition workforce. Training of the ERTs virtually ceased after 2002, prompting very dire, harsh, and pointed communications from the cadre of FCOs (the team leaders) to the leadership of FEMA and DHS.¹¹¹ They asserted that this lack of

¹⁰⁷ Meyer and Zucker, *Permanently Failing Organizations*, 25.

¹⁰⁸ *Ibid.*, 24.

¹⁰⁹ U.S. Congress, Senate report, 14-6.

¹¹⁰ U.S. Congress, House report, 152-153.

¹¹¹ *Ibid.*, 158 and Interview with William Carwile, (September 16, 2006).

training and necessary equipment would eventually create large gaps in the organization's capability to respond...and it did!

Every part of the agency suffered. Because there were not adequate funds, and thus resources, virtually every response capability that FEMA possessed fell into disrepair and this became markedly evident during Katrina. Most every FEMA shortcoming pointed out in the aftermath of Katrina can be traced back to this one simple reason, one with a simple solution.

2. Disaster Funding

Once the President declares an emergency or disaster and enacts the Stafford Act, disaster funding can be used to resource and support the response. However, the Stafford Act also mandates that federal organizations provide whatever assistance is required to respond to an emergency or disaster, with or without reimbursement.¹¹² These organizations must use funds from their operating budgets and bear uncertainty regarding whether or not they will receive reimbursement.

This lack of assurance of reimbursement can make an agency slow to respond until directed. Indeed, many federal government organizations operate on a reimbursable, fee for services, basis and cannot respond adequately or at all without prior funding. In an interview with Kathy Montgomery, the Chief of the General Services Administration (GSA) Office of Emergency Management and Interagency Response, she cited this as one of the greatest barriers to more effective GSA support to FEMA in carrying out the GSA ESF Seven Resource Support responsibility.¹¹³ This sentiment rang true at the DLA. Lieutenant Colonel (LtCol) Dennis Carr from the DLA Defense Logistics Operations Center (DLA DLOC) indicated that, although DLA has a large reserve in the form of the Defense Working Capital Fund (DWCF) and was able to take many of the Katrina related costs (especially man-hours) "outta hide," this could also potentially inhibit DLA's ability to assist during future disasters.

¹¹² U.S. Congress, *Stafford Act*, sec. 304.

¹¹³ Interview with Ms. Kathy Montgomery, GSA Office of Emergency Management and Interagency Response, (July 19, 2006).

Many of the reports and writings in the aftermath of Katrina, including the White House report, the Senate report, and at least one GAO report indicate this lack of explicit authorization for pre-declaration preparations (and funding) as one of several shortcomings in the Stafford Act that requires action soon.¹¹⁴

D. THE ACQUISITION WORKFORCE

Recently, the entire FEMA organization operated with personnel shortages of 15 to 20% vacancies in positions due to budget shortfalls. At that, many of the critical positions were filled with other than full time, fully benefited employees. These temporary employees filled one-year or four-year appointed contract positions under the Stafford Act without eligibility for the benefits accorded career civil servants. These staffing shortfalls markedly reduced the ability for adequate disaster relief contracting preparation and response.¹¹⁵

In the procurement office, 55 positions were authorized but funding shortfalls did not provide for that many employees. When Katrina hit, the procurement office employed 36 personnel. A 2005 DHS procurement capabilities study listed FEMA's procurement office as "red," or understaffed, and that the agency really needed 95 – 125 personnel for a normal procurement workload.¹¹⁶

With this severely undermanned acquisition workforce, the catastrophic devastation of Katrina compounded the problem. Critical contracts were slow to complete, planned procurement measures were sidestepped and awarded non-competitively, often even verbally. The former FEMA Director of Response, Eric Tolbert testified, "[t]hat's the reason all these contracts are done as emergency contracts that are never complete because there's no capability in FEMA to do procurement...the procurement capability in FEMA also is dead."¹¹⁷

¹¹⁴ White House report, 70; Senate report, Foundational Recommendation #7; GAO 06-746t, 9.

¹¹⁵ U.S. Congress, Senate report, 14-7.

¹¹⁶ Ibid., 14-11.

¹¹⁷ Ibid., 14-12.

FEMA's Chief Acquisition Officer did urgently request assistance from the DHS Office of the Inspector General (DHS-IG) for procurement oversight, and DHS-IG assigned 60 employees and immediately took action to start hiring additional personnel. Eventually, 13 agencies provided hundreds of acquisition personnel for the Katrina response and, particularly the DoD, with the Defense Contract Management Agency (DCMA) and Defense Contract Audit Agency (DCAA) providing a cadre of auditors and other personnel to provide oversight.¹¹⁸

The acquisition division office had, out of necessity due to budget cuts, become very reactive and lacked future event planning capability. Some of the biggest criticisms have been the amount of contracts that were awarded without competition and without the preference for local or disadvantaged companies. Both of these issues counter the general principle of the Stafford Act, but the massive devastation from the largest disaster in U.S. history supported the need to accomplish critical tasks rapidly, vice slowing the process. Although, more criticism has come from FEMA not re-competing contracts in the months following the disaster when the response turned into recovery. In the "Fog of War" that ensued during the Katrina response and recovery, funds were wastefully spent with little controls or oversight simply because there were not enough trained personnel in the FEMA acquisition workforce.¹¹⁹

E. SUPPLY CHAIN SHORTFALLS

As discussed earlier in this project, with the various entities that responded to the catastrophe, Katrina overwhelmed everyone's expectations. The impact covered 90,000 square miles, an area the size of the United Kingdom. Ten times as many homes were destroyed than were from Hurricane Andrew, the most recent devastating hurricane, and the economic destruction equaled more than both Hurricane Andrew and the 9/11 terror attacks combined.¹²⁰

¹¹⁸ U.S. Congress, House report, 331-332.

¹¹⁹ U.S. Congress, Senate report, 28-1.

¹²⁰ Ibid, 2-1.

When disaster strikes, certain commodity types and near commodity supplies and services become immediately critical to the life, health, safety, and security of those in the affected area. Table 4 includes some of the most critical items.¹²¹

SHELTER	TARPS
WATER	SAND BAGS
FOOD	SANITATION EQUIPMENT
ICE	LOGISTICS SERVICES
BLANKETS/BEDDING	UTILITY REPAIR SVCS
PORTABLE TOILETS	CONSTRUCTION MATERIAL
MEDICAL SUPPLIES	DEBRIS REMOVAL SVCS
GENERATORS	CONSTRUCTION SERVICES
FUEL	PROJECT MGMT SERVICES

Table 4. Critical supply commodities for emergency responses.¹²²

Without question, the movement and pre-staging of these emergency commodities prior to Katrina's landfall was unequalled in FEMA's or the nation's history (Figure 7). However, it was not enough. Thousands of citizens remained stranded with no access to these critical supplies and services as FEMA and all the agencies involved attempted to piece together how to get the pre-staged supplies to the areas of most critical need and to ensure a steady and continuous flow of supplies into the region. As the secretary of the DHS so succinctly put it, "FEMA's logistics systems simply were not up to the task."¹²³

¹²¹ U.S. Congress, House report, 338.

¹²² The first three (bolded) commodities corresponding to the survival rule of 3's from the FEMA USAR Structural Collapse Technician Student Manual, Appendix B, page 10. 3 min. – Air, 3 hrs. – Shelter, 3 days – Water, 3 wks – Food. This highlights the extreme importance of rescue efforts and pushing these commodities to the affected area as soon as possible, especially shelter by the first day and food and water by the third day, as most people equate food and water and will start to panic without food and water after 3 days. Information from FEMA website, [<http://www.fema.gov/emergency/usr/sctc.shtml>]. Accessed November 2006.

¹²³ U.S. Congress, Senate report, 23-1.

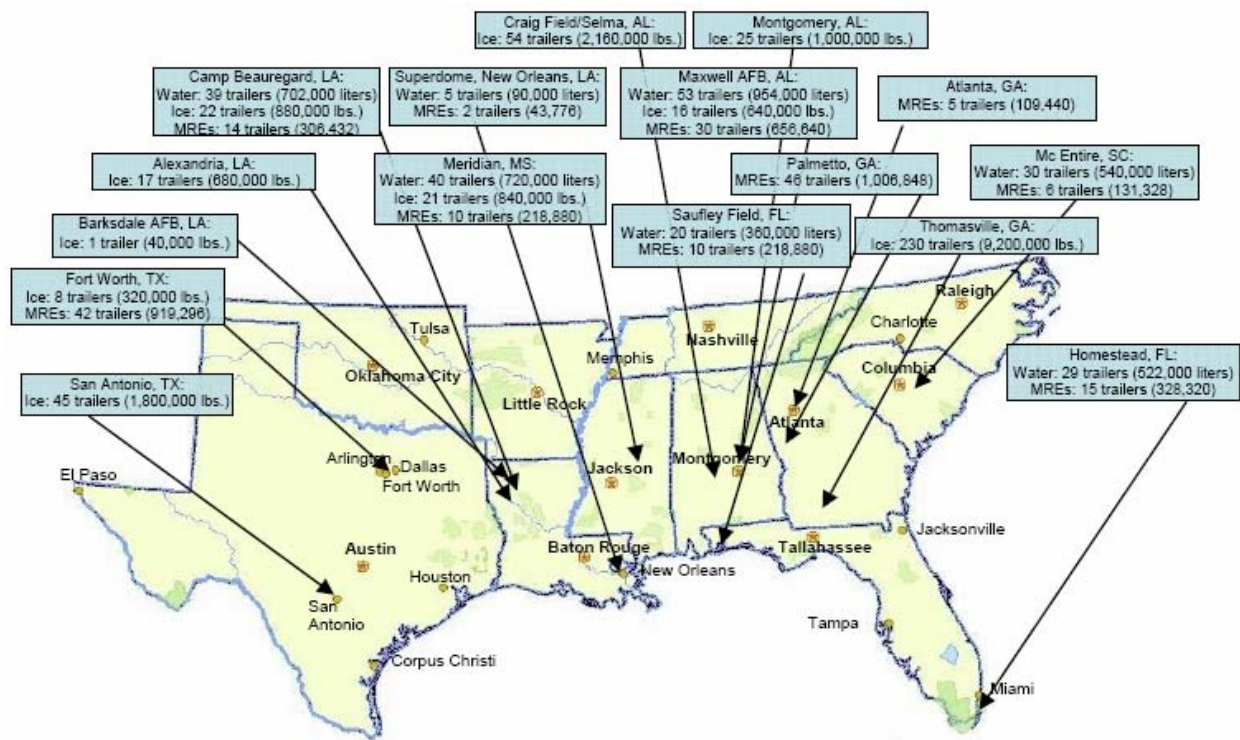


Figure 7. Emergency commodity positioning prior to Katrina landfall¹²⁴

Indeed, FEMA's contracting and logistic capabilities did not meet the needs either before Katrina's landfall or during the weeks of the aftermath, exposing yet another emergency response shortfall at the agency. While the lack of resources and funding played a major role in this, many other factors contributed. Discussed now are some of the impacts of these supply chain shortfalls.

1. Logistics

Some supply requests were not met for weeks after submission. Ineffective communication and lack of asset visibility complicated the process and left many orders not arriving at the intended locations. Many housing resources made available by other government agencies were never offered to evacuees and were not used. Private companies found it difficult to track down a FEMA representative to coordinate support. FEMA did not coordinate with retail chains for their supply line support for better and

¹²⁴ White House report, 30.

more efficient deliveries. FEMA turned to the DoD for major support in logistics and the NORTHCOM began execution on September 3, 2005 for logistical support to Louisiana and Mississippi.

Then FEMA Director, Michael Brown, summed up the enormous logistics problem for FEMA in an address to a Select Committee Hearing on September 27, 2005:

[O]ne of the lessons that we need to learn from this catastrophic event is that we do need to get better about marshaling those assets and moving them around. I will tell you up front, FEMA has a logistics problem, we have a problem understanding all the time. I can point out where our staff is and I can point out where it's supposed to go to, I can't always tell you that it actually got there.¹²⁵

A massive pouring of charitable donations was also a problem for FEMA. Companies had difficulty coordinating with FEMA for delivery and the agency had difficulty integrating donations into their operations. No system was set up to accept foreign financial assistance.¹²⁶

There were many complaints that FEMA reduced assistance requests from the states considerably. For example, the Director of the Alabama Emergency Management Agency requested 100 trucks of water and 100 trucks of ice. FEMA provided only 17 trucks of water and 16 of ice.¹²⁷ Another issue with FEMA's lack of asset visibility came from the information technology system used. FEMA uses Logistics Information Management System III (LIMS III) to manage inventory of supplies and equipment. This system does not integrate with other FEMA information systems or any other federal, state, local, or private programs. It also does not provide shipping status or delivery confirmations, only ordering information.¹²⁸

2. Contracting

Awarding of contracts proved to be very problematic, especially in the first days after Katrina's landfall. 80% of the \$1.5 billion of contracts were awarded on a sole-

¹²⁵ U.S. Congress, House report, 318.

¹²⁶ White House report, 44-46.

¹²⁷ U.S. Congress, House report, 321-322.

¹²⁸ *Ibid.*, 327.

source basis or limited competition due to pressing humanitarian needs. The most worrisome are early contracts that were being executed without being written. FEMA acquisition specialists verbally directed companies to start work and submit vouchers before any contracts were signed. Even with DCMA and DCAA assistance, inadequate resources for oversight or management were available for administration of awarded contracts.¹²⁹

Several contracting firms raised significant concerns during the Katrina aftermath from problems with their contracts. These include:

- Liability – Concerns over environmental liabilities from pumping contaminated water.
- Changing Requirements – Continually changing requirements posed potential funding issues, time and resource issues, and goodwill.
- Contract Awarding – Contractors had difficulty getting actual contracts signed by proper officials and also slow payments from FEMA. Contractors turned down some contracts due to concerns of not being paid by FEMA, especially with subcontractors needing the quick cash flow. Stafford Act concerns where local businesses should be awarded contracts and out of region companies hired.
- Conflicts of Interest – Companies working for both FEMA as assessors and then local authorities to complete the work using FEMA funds.¹³⁰

So bad were the contracting concerns and the surrounding negative publicity that many contractors have indicated that they will probably not conduct business with the federal government during future disasters simply to avoid the reputation damage, and costly public scrutiny.¹³¹

F. CHAPTER SUMMARY

Clearly, as this chapter points out, there are many issues that must be addressed by FEMA to improve future disaster responses. All of these have direct or indirect effects on FEMA's ability to acquire, deliver and manage the goods and services so crucial to response and recovery. There also exists many ideas, policies and technologies, some new and innovative and some already existing, that could be brought

¹²⁹ U.S. Congress, House report, 329-330.

¹³⁰ Ibid., 331.

¹³¹ Ibid., 337.

to bear to mitigate these issues. The next chapter explores some of these, with particular attention on technologies or technology related policies that could improve FEMA and DHS acquisitions capabilities, both routine and disaster related.

V. EXPLORING THE ALTERNATIVES: LEVERAGING AVAILABLE CONCEPTS, SYSTEMS AND TOOLS FOR IMPROVED ACQUISITION PROCESSES AND RAPID DISASTER RESPONSE

A. OVERVIEW

The previous chapters discussed the problems that occurred with the Federal Government's response to Hurricane Katrina, with particular emphasis on DHS and FEMA. In conducting research for this project, the authors found that FEMA and DHS are on the path to recovery with many of these areas of concern, with several initiatives currently in various stages of development and implementation that may prove effective in addressing them. However, one area that is not addressed extensively by FEMA and DHS is the use of information technology to provide solutions to these concerns and to rapidly effect emergency contracting in future catastrophes.

This chapter provides a brief summary of initiatives currently in place or in progress to address many of the identified areas of concern. A review of emergency streamlined acquisition procedures is then presented, as the implementation of these procedures during Katrina was a subject of great concern throughout the response and recovery phases and the ensuing after action reviews by the administration and congress.

The chapter then analyzes four information technology related initiatives that hold promise for FEMA and DHS as potential solutions to improve efficiencies in acquisition and contracting.

B. FOCUSING FEMA'S FUTURE: INITIATIVES IN PROGRESS

Through the research conducted for this project, the authors found that FEMA, DHS and Congress have not only recognized many of the critical issues but have taken robust measures to address them. Some of the most significant of these are listed here.

1. Acquisition Workforce Improvement Initiatives

Elaine Duke, the DHS Chief Acquisition Officer and Donna Jenkins, DHS Human Capital Strategist have spearheaded several efforts to improve the acquisition workforce at DHS and FEMA. Two of these initiatives include:

a. *DHS Fellows Program*

DHS has embarked on an ambitious recruiting program to hire 800-900 additional personnel into their acquisition workforce.¹³² As part of this effort, DHS has created a DHS Fellows internship program to attract competitive, quality, career oriented college graduates into acquisition careers at DHS. The program is a three-year internship that involves rotational assignments through many different organizations within DHS to broaden exposure and build knowledge diversity, create excitement and build flexibility into the individuals. At the end of the program, which includes a two-year probationary period, successful candidates are eligible for direct conversion to competitive career civil service, bypassing the traditional competitive hiring process. Subject to completion of Defense Acquisition Workforce Improvement Act of 1990 (DAWIA) level III experience requirements and attaining certification, individuals are then placed in General Schedule (GS)-13¹³³ positions.¹³⁴

The innovative structure and career mobility incentives of the Fellows program has attracted interest from over 700 quality candidates from well known, highly respected universities (it targets top 100 ranked universities, universities within 200 miles of Washington, District of Columbia (DC), and historically Black, Asian and Latino schools) and promises to prove extremely successful in attracting motivated performers into the DHS Acquisition workforce.¹³⁵

b. *Professional Education and Development through the Defense Acquisition University and the Federal Acquisition Institute*

DHS is working with the Defense Acquisition University (DAU) and the Federal Acquisition Institute (FAI) to develop courses and a certification process for

¹³² Interview with Ms. Donna Jenkins, Department of Homeland Security Director of the Acquisition Workforce, (July 18, 2006).

¹³³ General Schedule ranges from GS-1 to GS-15 pay scales for professional Federal civilians. GS-5 and below are generally entry level, while GS-7 and above require additional education, experience, superior academic achievement or scientific research. Movement from GS-5 to 7, or 7 to 9 (etc.), generally requires a minimum of one year's experience at the previous grade to become eligible, plus any additional education or training requirements. Information from the US Office of Personnel Management website, [<http://www.opm.gov/qualifications/SEC-IV/A/GS-PROF.asp#table>]. Accessed November 2006.

¹³⁴ Jenkins, *DHS Acquisition Fellows and Recruitment Programs*, PowerPoint Presentation, (July 18, 2006).

¹³⁵ Ibid.

Emergency Response and Recovery to ensure deploying personnel in any capacity are familiar with the federal disaster response framework, including topics such as the NRP, the NIMS, the ICS, and contingency contracting, as well as establishing an acquisition professional certification process similar to the DAWIA process and developing an Emergency Response and Recovery Community of Practice online as part of the DAU Acquisition Community Connection.¹³⁶

2. Federal Disaster Response Contracting Corps

DHS is developing a Disaster Response Contracting Corps (DRCC) similar to the DoD's contingency contracting corps now being utilized in Iraq. As part of this initiative, they are identifying the required skill sets, and developing certification programs similar to the ones already discussed above. They are also developing the business rules and procedures to implement and foster the growth of the DRCC.¹³⁷

This corps would operate similarly to the DoD model, where volunteers receive initial and continuing training and maintain readiness to deploy as soon as a disaster strikes. This initiative relies heavily upon the professional education and development efforts of DHS to ensure a well trained, professional, rapidly deployable strike team, similar to the ERTs that can immediately make a difference.

3. Disaster Funding

When the President uses Stafford Act authority for disaster support, the funding that supports and resources these efforts, comes from the Disaster Relief Fund (DRF). This is a "no-year" revolving fund account that does not expire from year to year, similar to the Defense Working Capital Fund. Congress appropriates funds as needed to keep the account solvent.¹³⁸

In 2005, Congress appropriated over \$10 billion based on FEMA's response to disasters in 2004 up until Katrina, particularly from four hurricanes during the fall of

¹³⁶ Interview with Ms. Jenkins and *DHS Acquisition Fellows and Recruitment Programs*, PowerPoint Presentation, (July 18, 2006).

¹³⁷ Jenkins, *Emergency Response and Recovery Working Group Federal Wide Collaborative Development: Status Update*. PowerPoint Presentation. (July 2006).

¹³⁸ Bea, *Federal Stafford Act Disaster Assistance: Presidential Declarations, Eligible Activities, and Funding*, 28.

2004. As of June 7, 2006, over \$26 billion has been obligated in 2006 towards Katrina response from the DRF. 2005 appropriations into the DRF increased from the previous \$10 billion to almost \$70 billion. This revolving account allows FEMA to manage activities quickly with available funds vice waiting on the normally lengthy federal appropriations process.¹³⁹

Thus, while FEMA did have the capability that the DRF provides prior to Katrina, that capability has been significantly strengthened and funds are more than adequate for any initial response, especially for FEMA taking proactive measures to pre-position commodities throughout the country, pre-compete contracts and initialize mobilization for known potential threats. There still remains, though, the need to address and correct Stafford Act restrictions on providing these funds to other federal agencies, state and local authorities prior to emergency or disaster declaration.

4. Contracting, Logistics and Resources

FEMA is working closely with GSA and DLA to ensure ready access to critical commodities, supplies, and services. GSA has implemented a disaster relief portal in GSA Advantage to provide federal agencies access to ID/IQ contracts for disaster response and recovery supplies and services and GSA remains an active participant in FEMA interagency planning initiatives.¹⁴⁰ FEMA has funded DLA to provide fenced inventory levels of critical commodities, especially MREs, at critical DLA distribution points throughout the country and provide means to resource other requirements through DLA's acquisition channels if necessary. FEMA has also formally partnered with DLA to provide a comprehensive In-Transit Visibility (ITV) capability for the movement and tracking of disaster relief supplies during an emergency or disaster. DLA has also developed the DDX capability that will allow it to quickly deploy and set up mobile logistics depots, complete with material handling and mobile command, control and communications capabilities, in any large parking lot in or near the affected area.¹⁴¹

¹³⁹ Federal Emergency Management Agency, *Weekly Disaster Fund Report*, (June 7, 2006).

¹⁴⁰ General Services Administration, GSA Advantage Disaster Relief website.

¹⁴¹ LtCol Carr interview, (July 17, 2006).

5. Lead Agency Concept

One of the concepts the authors originally intended to explore was the concept of proposing that certain federal departments or agencies with expertise in an area be designated as the lead agency for that mission area. For operational and supply chain logistics, including acquisition and disaster relief contracting, this would be DoD. This is similar to the ESF concept, with its primary and support organizations, but significantly more robust and thought out.

However, the authors found via the many interviews and telephone conversations with personnel at FEMA and DHS that these organizations possess a strong desire to develop the skill sets, systems and technologies internally. They want to greatly enhance their expertise and coordination capabilities so they maintain their role as the primary integrator for disaster response.

6. Placement and Other Organizational Concerns

The organizational placement and other concerns discussed in chapter IV were strongly heeded by Congress and action has been taken. The Department of Homeland Security Fiscal Year (FY) 2007 Appropriations Act, was signed into law on October 4, 2006.¹⁴² This Act includes several key provisions aimed at strengthening FEMA and correcting contentious DHS reorganization moves. These provisions should go far towards addressing many of the systemic problems that have plagued FEMA. Several of the key provisions include:

- Elevating FEMA to the status of an Independent Agency within DHS, similar to the U.S. Coast Guard and the Secret Service,
- Elevating the Director of FEMA to the position of Chief Presidential Advisor for Emergency Management,
- Restoring the preparedness function and its critical grant management function back under FEMA, so that the agency can more effectively work with state and local emergency management professionals to increase preparedness,
- Strengthening capabilities on a regional level,
- Increasing FEMA's operating budget by 10%, and

¹⁴² White House, *News Release: President Bush signs DHS Appropriations Act*, (October 4, 2006).

- Requiring leadership positions, including the Director to be filled by individuals with extensive emergency management experience.¹⁴³

C. **EMERGENCY STREAMLINED ACQUISITION PROCEDURES**

Title 10 of United States Code, Section 101.A.13 sets forth what may be considered a declared contingency operation. Part B of this section states that a contingency operation could also include a presidentially or congressionally declared national emergency.¹⁴⁴ Pursuant to the declaration of a contingency, or in the case of a large scale disaster such as Katrina that has been declared a national emergency, there are many acquisition procedures, laws and regulations that are either relaxed, supplemented or disregarded.¹⁴⁵

As of July 05, 2006, these acquisition procedures have now been consolidated into one section of the FAR.¹⁴⁶ FAR part 18, a previously reserved part, now provides a consolidated reference of all emergency streamlined acquisition procedures contained throughout the FAR. Some of the most significant procedures include:

- Increased Micropurchase Threshold: The micropurchase threshold during a declared continental U.S. (CONUS) contingency operation increases from \$2,500 to \$15,000.¹⁴⁷ Micropurchases can be awarded without competition to a sole source.
- Simplified Acquisition Procedures: The upper threshold for using Simplified Acquisition Procedures (SAP) increases from \$100,000 to \$250,000 during a declared CONUS contingency operation.¹⁴⁸ SAP acquisitions are set aside, unless impracticable, for award solely to small businesses.¹⁴⁹
- Commercial Items: The upper threshold for using the Commercial Items SAP test program increases from \$5,500,000 to \$11,000,000 during a

¹⁴³ U.S. Congress, *Press Release: FEMA Reinvention Clears Congress*, (September 29, 2006).

¹⁴⁴ Defense Acquisition University, *Contingency Contracting Student Handbook*, 2-3 and Federal Acquisition Regulation, Part 2.101.

¹⁴⁵ Hurricane Katrina was declared a national emergency by President Bush on September 8, 2005, and thus contracting activities supporting the response utilized most every available streamlined procedure. Poole and Welch, *Responding to Katrina: Contracting in an Emergency Situation – Ver. 2.1*, 1-9.

¹⁴⁶ Federal Acquisition Regulation, Part 18.

¹⁴⁷ Poole and Welch, *Responding to Katrina: Contracting in an Emergency Situation – Ver. 2.1*, 2.

¹⁴⁸ Ibid.

¹⁴⁹ Federal Acquisition Regulation, Part 19.502-2.

declared CONUS contingency operation.¹⁵⁰ This program allows the purchase of commercial items or services using SAP up to the greatly increased limits listed above.

- Expedited Procurement Standards: Contracting organizations can use oral requests for proposal, award without first advertising or synopsis, waive requirements for Central Contractor Registration and Electronic Funds Transfer Capability, etc.¹⁵¹
- Competition Requirements: Acquisitions may be made during emergencies without providing for full and open competition during circumstances of urgent and compelling needs. Sole source acquisitions can be made under these same circumstances for purchases made pursuant to SAP.

Debate abounds regarding the execution of these streamlined authorities, especially the Katrina increase in the micropurchase threshold. Many feel that increasing the micropurchase limit to \$250,000 was unnecessary, hurt small businesses and that the strict controls that the Office of Management and Budget (OMB) placed on its use placed undue burden on the field contracting officer.¹⁵² Others, however, strongly supported this flexibility and praised it as another “back pocket” tool to be used in purchasing situations that could mean the difference between life and death for a disaster victim.¹⁵³

Still others claim that raising the micropurchase threshold to the same \$250,000 emergency situation limit afforded SAP actually circumvented the Stafford Act.¹⁵⁴ Section 308 of this act directs that the spending of federal disaster relief funds give preference, to the maximum extent feasible, to local organizations, businesses and individuals in the area affected by a disaster. Per FAR part 19, purchases made using SAP are to be set aside for small businesses.¹⁵⁵ While this requirement holds true for SAP purchases, it does not apply to micropurchases. Since local businesses and

¹⁵⁰ Federal Acquisition Regulation, Part 13.5(a).

¹⁵¹ Luckey, *Emergency Contracting Authorities*, 5-6.

¹⁵² Friar, *Federal Contracting in Emergencies*, 22.

¹⁵³ Interview with Commander Mark Goodrich, Office of the Deputy Assistant Secretary of the Navy for Acquisition Management, (July 18, 2006). Commander Mark Goodrich made the point that placing a phone call to receive permission from proper authorizing officials, as outlined in the OMB memorandum, represented a small price to pay and a minor inconvenience when lives and safety were on the line.

¹⁵⁴ Friar, 22.

¹⁵⁵ Federal Acquisition Regulation, Part 19.502-2.

individuals in disaster stricken areas typically are small businesses, the claim is made that raising the micropurchase limit to the same limit as the SAP limit opens the possibility of purchases not being made from small or local businesses in providing for disaster response and recovery.¹⁵⁶

As the two examples above show, much debate does surround the use of streamlined contracting procedures during emergencies, especially in overwhelming circumstances such as Katrina. Many other stories similar to the ones above are readily available. However, the root of the problem quite possibly lies less in the streamlined procedures and more in the application of the procedures and, as Professor Allen Friar of DAU, Huntsville Alabama suggests, in the lack of trained acquisition professionals capable of executing them.¹⁵⁷ In reality, these procedures, properly used, provide greatly enhanced capability and capacity to respond in emergency situations.

Far from curbing the use of streamlined acquisition procedures, one suggestion to enhance the federal government's ability to respond would entail including presidentially declared major disasters and emergencies, as defined by the Stafford Act¹⁵⁸, in the title 10 definition of a contingency operation, alongside declared national emergencies. This suggestion, according to Rear Admiral Martin Brown, the Deputy Assistant Secretary of the Navy for Acquisition Management, would actually encourage the use of these procedures.¹⁵⁹ These time critical situations would then be afforded the same standing as any other contingency and allow involved contracting organizations to tap the streamlined processes and provide a much quicker, more robust response capability. As well, this capability could be provided without requiring Congress to pass emergency

¹⁵⁶ Friar, 23.

¹⁵⁷ Ibid., 22.

¹⁵⁸ U.S. Congress, *Stafford Act*, sec. 102.

¹⁵⁹ Interview with Rear Admiral Martin Brown, Deputy Assistant Secretary of the Navy for Acquisition Management, (July 18, 2006).

legislation individually tailored to each emergency, as happened with the PL 109-62 (Katrina Emergency Supplemental) provision that raised the micropurchase threshold to \$250,000.¹⁶⁰

Increased use of emergency streamlined acquisition procedures would require greater oversight costs during the response and greater auditing costs during the latter stages of the response and during recovery efforts. Streamlined procedures, by their quick and relaxed nature, are more vulnerable to abuse and to improper application due to time constraints and lack of training. As with the non-emergent contracting, oversight and auditing are required to ensure wise use of taxpayer funds. These vital functions come at a price and, during emergencies, at a premium, as far greater levels of them are generally required.

Limited competition and time critical requirements also serve to quickly drive contract costs higher in an emergency environment. Streamlined procedures magnify this effect by quickening the pace and increasing the volume of goods and services acquired within limited time constraints and decreased competition. Another, possibly unintended cost, is a smaller base of vendors and suppliers willing to conduct business with the federal government for fear of being unduly audited and/or receiving negative publicity as a result of receiving an higher than normal price on a contract due to erroneous government procedures.¹⁶¹

What about the benefits of emergency streamlined acquisition procedures? Do they outweigh the costs? Research conducted did not uncover any detailed studies or quantitative analyses suggesting either to be the case. However, the authors put forth that the potential benefits in terms of saved lives and property far outweigh additional procurement and ensuing oversight costs. Further, the costs, both intended and unintended, can be decreased and benefits, in the form of quicker response and more lives saved, increased through proper planning and, especially, enhanced training of the acquisition professionals tasked with emergency response.

¹⁶⁰ Luckey, 2.

¹⁶¹ U.S. Congress, House report, 337.

D. TELECOMMUTING / TELEWORKING

One of the concerns for FEMA's ability to attract highly qualified acquisition workforce personnel is the location of its headquarters – Washington, DC. The nation's capital is a high cost, high commute area. The Washington, DC Metropolitan Area has the third longest commute in the country and also the most costly commute due to expensive housing near the city, excessive traffic congestion and long transit times. Forecasts over the next dozen years show significant increases in miles traveled with little road capacity increases.¹⁶²

With the high cost of living and commuting, and the extreme shortage of acquisition workforce personnel available, FEMA faces definite challenges in acquiring more personnel for headquarters and even other regional centers. In addition, when disasters occur, FEMA acquisition personnel tend to work long days and weeks to accomplish the time sensitive needs of procurement. This places commuting time as an even higher issue than without a disaster to respond to. From the 2000 U.S. Census information, the National Housing Conference reported the average household spends 40% of their total income on housing and transportation costs in the Washington, DC Metropolitan Area. Households with income of less than \$75,000 spend an average of 45% – 78% of total income on housing and transportation. This definitely adds to FEMA's difficulty in attracting qualified personnel at mandated government schedule salaries when acquisition personnel are a highly sought after commodity due to shortages throughout the government and civilian sector.¹⁶³

Teleworking, the official federal moniker for telecommuting, is a concept that allows personnel to work from home or another non-traditional workplace other than the usual office place. A recent study conducted by Intel Corporation and the research firm Sperling listed Washington, DC as the nation's top Telework-friendly city due to the high costs, high speed internet accessibility, commuting times, fuel prices and percentage of

¹⁶² Washington Metropolitan Telework Centers website, *What is Telework?*

¹⁶³ National Housing Conference website, *Washington, DC PMSA*.

Telework friendly employment. The study showed a worker Teleworking only one day per week would see a savings of \$488 in transportation costs and a time savings of \$2,708 per year.¹⁶⁴

Over the last dozen years, the Federal Government has made strides towards using Telework for federal civilian employees. Public Law 108-447 in 2004 introduced Federal Departments and Agencies into Teleworking and later that year provided funding and required reporting on the status of Telework employees. In 2000, Public Law 106-345 began mandating all executive agencies in the Federal Government to establish policies on Telework, covering the entire Federal Workforce within three and a half years. As of 1995, Federal Departments have the authority to use appropriated funds to install equipment, telephone lines and pay monthly fees in private residences for Telework use.¹⁶⁵

Telework can be a benefit for the government and government employees by reducing stress, reducing commute times, recruiting/retaining highly qualified personnel, reducing traffic congestion and pollution, and even continuity during an emergency at the traditional workplace location. This form of work program is attractive to task-oriented professionals, such as government contracting.¹⁶⁶ Technological barriers exist to Telework, but have been discovered not to be significant. Technical support needs increase and a more robust Information Technology (IT) department is usually needed. According to Federal Telework Coordinators, acquiring the funds to procure computer equipment and network services has been the largest obstacle for implementing successful Telework programs. From case studies, approximately half of Teleworkers prefer using their own personal computers and equipment, which can significantly decrease the cost to the agency.¹⁶⁷

¹⁶⁴ Waxer, *Washington DC tops list of Telework-friendly cities*, (March 30, 2006).

¹⁶⁵ U.S. Office of Personnel Management website, *Telework laws*.

¹⁶⁶ U.S. Office of Personnel Management, *A guide to Telework in the Federal Government*, (August 3, 2006).

¹⁶⁷ U.S. Office of Personnel Management, *Final Report on Technology Barriers to Home-Based Telework*, (April 5, 2002).

The DHS published a Telework Directive in 2005 consisting of five pages mostly stating the governing statutes, definitions, responsibilities and very generic policies and procedures that does not truly provide detailed information on a successful implementation for Teleworking.¹⁶⁸ OPM provides a much more in depth guide to Teleworking in the Federal Government, covering types of Telework (can be as little as one day per month or up to more than three days per week), benefits for the manager and worker, expectations and evaluations of the work, and detailed responsibilities of the manager and the worker.¹⁶⁹

The authors invested some time researching low-cost Telework information technology. As a result of this research, the authors recommend an iMac system for ease, reliability, security, video teleconferencing capability, and an overall good design for Teleworking. A second laptop system is also listed to provide a capability for a worker to deploy with the capability, not just working from a static location away from the office. Both systems include a second monitor for teleconferencing, allowing the user to video-conference with the office while also utilizing the computer's other screen for normal work.¹⁷⁰ The system requirements and costs are listed below in Figures 8 and 9 for the desktop iMac system and the portable laptop system.

¹⁶⁸ U.S. Department of Homeland Security. *2006 Telework at the Department of Homeland Security*. (August 17, 2005).

¹⁶⁹ U.S. Office of Personnel Management, *A guide to Telework in the Federal Government*, (August 3, 2006).

¹⁷⁰ Interview with Mr. Peter Maartmann-Moe, XSLENT Technologies, (September 5, 2006).



Apple iMac

Cost: \$2,641

Features:

Additional 20" Flat screen Cinematic Display

2.16GHz Intel Core 2 Duo Processor

1GB 667 DDR2 SDRAM - 2x512

250GB Serial ATA Drive

ATI Radeon X1600/128MB VRAM

SuperDrive 8X (DVD+R DL/DVD±RW/CD-RW)

Apple Keyboard & Mighty Mouse + Mac OS X (US English)

20-inch widescreen LCD

Figure 8. Apple iMac desktop system.¹⁷¹

¹⁷¹ Email from Mr. Maartmann-Moe, (September 7, 2006). Specifications and pictures taken from [www.apple.com]. Accessed November 2006.



Dell Inspiron 9400

Cost: \$2,898

Features:

2.00GHz Intel Core 2 Duo Processor

1GB Shared Dual Channel DDR2 SDRAM at 533MHz

120GB 5400RPM SATA Hard Drive

Combo/DVD+RW Drives:

8x CD/DVD burner (DVD+/-RW)

Integrated Intel® Graphics Media Accelerator 950

17-inch widescreen XGA+Display

Figure 9. Dell Inspiron 9400 laptop system.¹⁷²

Additional costs can come from potentially higher IT support needed with workers at a separate location than the traditional office.

For FEMA, Telework can be an important element in attracting much needed high quality, highly qualified acquisition personnel. With the significant detractors of working for the agency of high costs and commute times in downtown Washington, DC or other large cities where regions can be based, and regulated salaries without commercial

¹⁷² Email from Mr. Maartmann-Moe, (September 7, 2006). Specifications and pictures taken from [www.Dell.com]. Accessed November 2006.

incentives to provide above government salaried pay scales, Telework introduces a great incentive to attract the professional workforce that FEMA wants and needs, even if it requires a larger than normal initial cost investment.

E. NAVAL POSTGRADUATE SCHOOL GLOBAL INFORMATION NETWORK ARCHITECTURE TECHNOLOGY

The Global Information Network Architecture (GINA) represents one solution to the interoperability required for network-centric warfare. As such, it also offers a prime solution to the challenge posed by the office of the DoD Chief Information Officer in September of 1999 to develop a Global Information Grid (GIG) to enable this connectivity.¹⁷³ The challenge posed by the GIG centers around developing the hardware, software and IT architecture to facilitate connectivity and interoperability among disparate computer systems.

The magnitude of this challenge is enormous. The DoD has over 4200 Management Information Systems (MIS) and other legacy business systems alone. Each one developed individually for a singular purpose and with little or no means to interconnect with other systems. This does not include the vast number of other computer systems operated by the department for war fighting, intelligence gathering, and other critical purposes.

Current conventional methods of creating this connectivity would involve integrating all of these systems to each other individually, as depicted in Figure 10. Each integration would cost approximately \$1 million and take from 6 months to a year to complete. Thus, this conventional integration is resource prohibitive in terms of time and money.¹⁷⁴

¹⁷³ Information from Wikipedia, [http://en.wikipedia.org/wiki/Global_Information_Grid]. Accessed November 2006. Also see Department of Defense Directive 8100.1, codifying the GIG into policy (September 19, 2002).

¹⁷⁴ \$4.2 billion to the 4199th power (4200 DoD management information systems). Burris, *Utilizing Information Technology to Facilitate Rapid Acquisition*, 47.

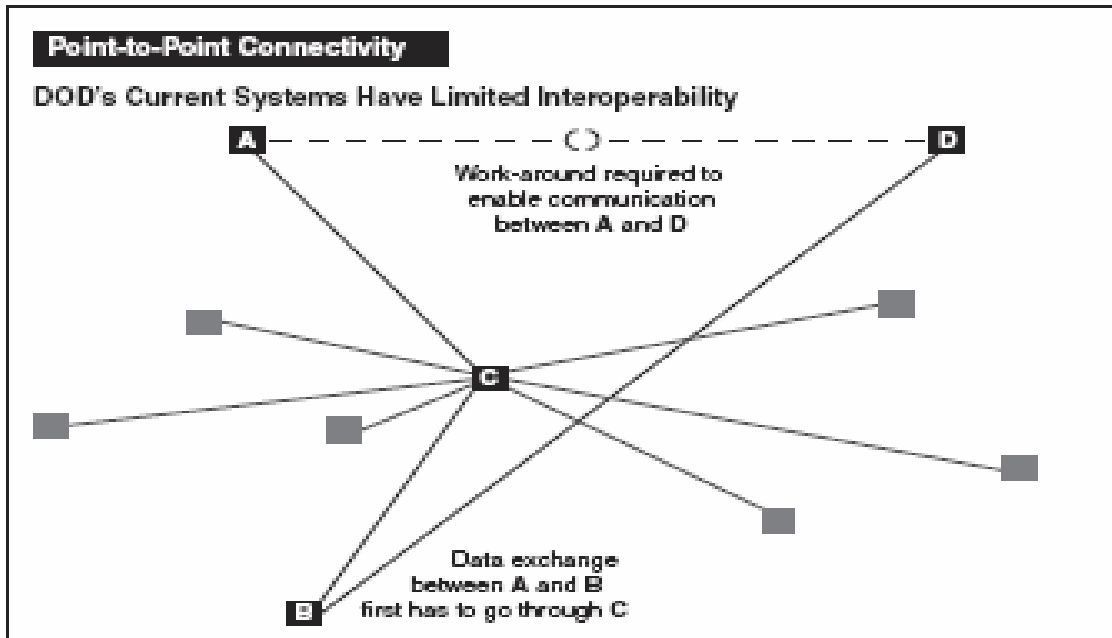


Figure 10. Integrating management information systems.¹⁷⁵

The GIG, by contrast, seeks to integrate data in an architecture where all human and technology based users and providers of information can push or pull information to and from the GIG in a collaborative, real time environment and drastically reduce duplication of effort in data and information handling, reduce errors in rapid decision-making due to limited or no interconnectivity and increase the reliability and accuracy of interconnected systems.¹⁷⁶ The conceptual structure envisioned by GIG developers involves several layers of information technology, networks and applications, centered around a core of space and mobile land based, interoperable hardware, with the outer layer being the users and providers of data and information, be they humans, computer systems or weapons systems. Figure 11 provides a graphic depiction of this concept.

¹⁷⁵ U.S. Government Accountability Office, *GAO-06-211 – Defense Acquisitions: DOD Management Approach and Processes Not Well-Suited to Support Development of Global Information Grid*, 8.

¹⁷⁶ *Ibid.*, 6.

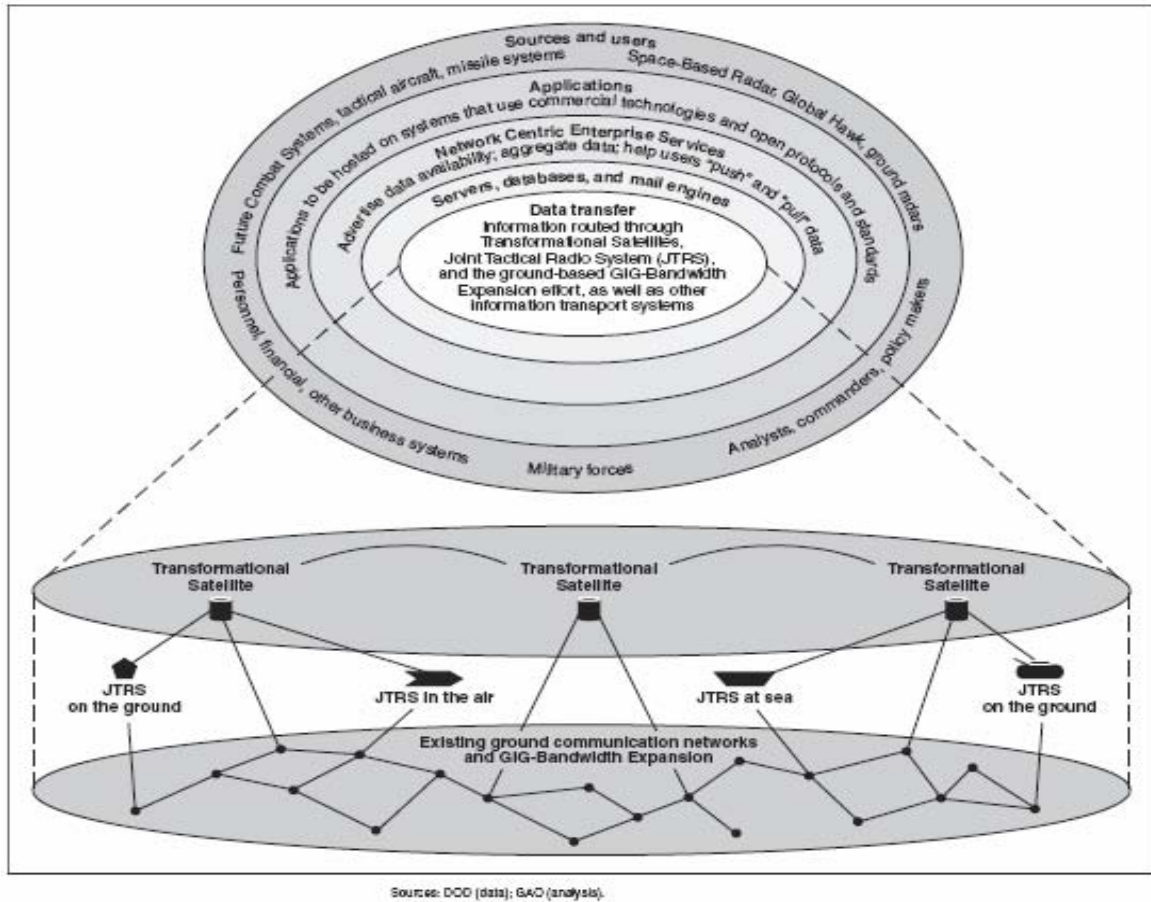


Figure 11. Depiction of the Department of Defense's characterization of the Global Information Grid¹⁷⁷

Thus far, however, DoD has made little progress in bringing the GIG to reality. Strides have been made in creating policies, concepts and procedures and developing technologies that would enable the GIG, such as satellite and radio systems and in interoperable weapons systems such as the Army's Future Combat System. However, the myriad of management, investment, operational and technical challenges that must be overcome to bring this GIG envisioned integration and interoperability into reality remains quite complex (see table 5). Without breakthrough technology, the GIG effort will prove a lengthy and very costly endeavor.

¹⁷⁷ U.S. Government Accountability Office, *GAO-04-858 – Defense Acquisitions: The Global Information Grid and Challenges Facing Its Implementation*, 7.

Management and Investment	<ul style="list-style-type: none"> - Deciding what capabilities are affordable; what capabilities are unaffordable or not in line with DOD's vision for the GIG, and enforcing these decisions among thousands of systems and across the military services. - Assuring DOD has the right representation in acquisition decisions. - Assuring management attention and oversight is provided to assess the overall progress of the GIG and determine whether it is providing a worthwhile return on investment, particularly in terms of enhancing and even transforming military operations.
Operational	<ul style="list-style-type: none"> - Deciding when, how, and how much information should be posted on the network and used. - Establishing rules to ensure the GIG can work as intended without reducing benefits of flexible and dynamic information sharing. - Convincing data owners of the value of sharing data with a broader audience and trusting the network enough to post data.
Technical	<ul style="list-style-type: none"> - Developing new technologies and advancing them on schedule. - Assuring common agreement on technical as well as information assurance standards and requirements. - Developing the means to protect the network and its data.

Table 5. Key Global Information Grid challenges.¹⁷⁸

The GINA technology offers such a breakthrough. Developed under the auspices of a Cooperative Research and Development Agreement (CRADA) between the Naval Postgraduate School (NPS) and Xsient Technologies, Inc., this technology could provide the foundational means for solving the GIG's integration challenges and form the backbone of the entire grid.

GINA is a network based software and hardware system that operates by defining certain types of information or data as an "object" to be transported between disparate systems. It takes this "object" or instance of data or information and provides it for use to

¹⁷⁸ U.S. Government Accountability Office, *GAO-04-858*, 19.

other disparate systems by means of a common definition of that object. These common definitions are created as a computer system and integrated into GINA.

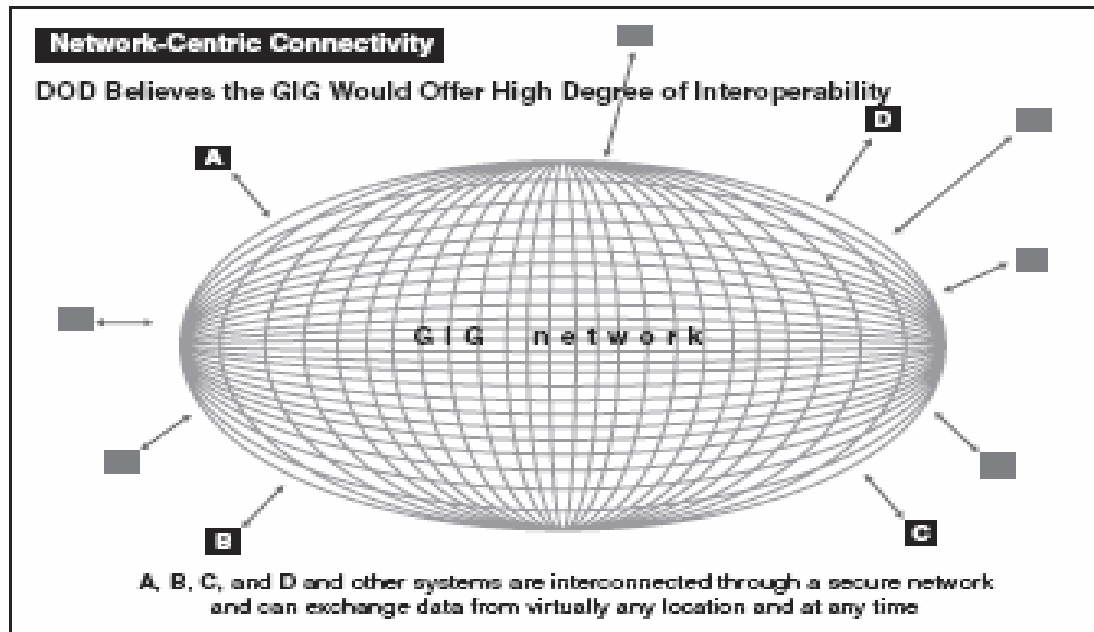
During the integration process of a computer system to GINA, metadata (data about data) is created that defines the data in such a way that it can be recognized by any other system, using the common definition. The structure of how data or information must be presented to the system from other systems is also defined.

Thus, when data or information, such as a line of accounting, for example, leaves one system, the data is automatically tagged with the common definition for the object “accounting data” and routed through the GINA network to the receiving system or systems included on the “tag.” At the object’s network destination, the data is structured into the form or format required by the receiving system, as defined in the integration process, and presented for use by the recipient personnel or systems. The integration process of defining the system’s architecture, including all data elements using GINA common definitions and architecture means that a system need only be integrated once, to the GINA, and not to 4199 other systems (see Figure 12 below). This brings into technological reality the globally interconnected network goal that is central to the GIG concept.

Many benefits accrue as a result. Cost savings estimates put the cost of integrating, or defining, a system to GINA using this object based structure at 10% of the cost of integrating system to systems using conventional computer programming to mesh the two systems into an integrated, interoperable and useful network arrangement.¹⁷⁹ In addition, as more systems are integrated into GINA, more and more common relationships, structures and data objects get defined in GINA, further driving down integration complexity, time and costs for additional systems.¹⁸⁰ Time savings are estimated to be 80%.

¹⁷⁹ Burris, 47. The Burris thesis provides an excellent resource describing, in depth the GINA and ROS Technology. The ROS Technology is referred to in this work as NEPS-D.

¹⁸⁰ Ibid. This thesis presents information suggesting that these costs can be driven down as low as 2% to 3% of conventional integrations.



Source: DOD (data); GAO (analysis and presentation).

Figure 12. Network-centric connectivity of the Global Information Grid¹⁸¹

The GINA technology, though, remains in the developmental stages. This is probably the most significant cost. This cost being that, while it poses a significant solution to FEMA and DHS in automating procurement, it is not currently available for full scale deployment and will not be available until late 2007. However, late 2007 is only 10 to 12 months away and integration efforts could start immediately to enable FEMA/DHS preparedness when the GINA technologies attain full operational capability. GINA has been fielded in several applications on an experimental basis and enjoyed significant success. Examples include GINA providing the backbone to integrate base security operations at Ft. Leavenworth, KS, at the Integrated Base Operations Center (IBOC), the Naval Postgraduate School Alumni Database, and several others.¹⁸²

¹⁸¹ U.S. Government Accountability Office, *GAO-06-211*, 8.

¹⁸² Naval Postgraduate School, *GINA website*, [<http://gina.nps.navy.mil>]. Accessed November 2006.

The GINA technology, once proven and fully operational holds the potential to transform the U.S. military into an even more effective force. It also holds much potential to transform the efficiency and effectiveness of both commercial and DoD business systems.

The integration capabilities of GINA could also benefit Federal, State and Local disaster response operations by integrating the entire scope of the response at every level. Federal, State and major cities' emergency response organizations could be integrated into a standing disaster coordination GINA network with the National Response Coordination Center (NRCC) for more effective command and control, volunteer resources, personnel and manpower, weather, damage assessments, intelligence, satellite imagery of the affected area. Many other resources, aspects and logistics functions, including acquisition, could be integrated as well. All of these functions could be linked to provide a common operating picture (COP) at the NRCC that could be replicable at the JFO on-scene and at other field sites to assist all involved and facilitate a more coordinated, quicker response.

This COP concept is currently being rolled out at the Fort Leavenworth, Kansas Integrated Base Operations Center (IBOC) and is set to become operational in January 2007. Figure 13 shows a picture of the IBOC's COP display.



Figure 13. Fort Leavenworth Integrated Base Operations Center Common Operating Picture display.¹⁸³

¹⁸³ Naval Postgraduate School, *GINA website*.

Another significant potential use for the GINA technology is in online ordering. Utilizing GINA technology, the entire procurement chain could be integrated into one network to allow each functional system involved to automatically provide and receive critical data input related to an acquisition, from the vendor catalog or data source, to the contracting and inventory systems, to the accounting and other financial systems, including payment systems such as DoD's Defense Finance and Accounting Service (DFAS). This would allow all actions required for an acquisition to take place almost instantly once the request process is completed and provide rapid, real time, critical information to all stakeholders, especially those stakeholders required for review, approval and auditing.

This online ordering capability of GINA technology, through the ROS, provides great potential to streamline acquisition at FEMA/DHS and to facilitate rapid ordering during emergencies. An even more significant potential for GINA use in disaster response would be to track all supply items from thousands of potential vendors, providing planners with information as to where supplies are and how long they will take to arrive. And, it could be used as a data registry to track donations from non-governmental organizations. This process would be very similar to the process of tracking displaced people.

F. RAPID ORDERING SYSTEM

The Rapid Ordering System (ROS) is an automated data/knowledge management system with form filler capabilities that utilize the GINA technology. It provides an information channel from the customers of a contracting office directly to the contracting officer so that all the effort of the customer is captured and incorporated into the contracting officer's contract file on an order. It documents the file, thereby freeing the contracting officer to focus on business decisions rather than administrative duties such as preparing memoranda for records. It has the ability, through GINA, to integrate all systems required to complete a transaction, from online vendor catalogs to accounting and payment systems, into one "system of systems" to dramatically increase the

effectiveness, speed, accuracy and regulatory compliance of the entire process. Both ROS and GINA are technologies under development at the Naval Postgraduate School with the Kansas City District office of the USACE.¹⁸⁴

The ROS is being built as a pilot project for the Kansas City District to support the Corps' emergency and construction related services. It provides a means for customers and their associated contracting organizations or officers to quickly, or "rapidly" query thousands of approved, contracted and pre-competed ID/IQ contracts with vendors for required products and services. This system is not a duplication of other systems such as the DOD EMALL, instead it is focused on much more difficult data processing requirements (if the DOD EMALL has a particular supply item already on contract, the ROS would query the EMALL to find it and direct the purchase to the EMALL). ROS can "see" into vendors' websites to find information about their products and services, thereby making that information available to the customer and the contracting officer, without these people having to visit each individual website.

Utilizing GINA's object oriented technology, ROS can automatically integrate the request and the associated data, or metadata (or meta-meta data), objects throughout the organization's procurement, financial, configuration management, inventory management and any other germane systems, such as payment systems at the DFAS. By allowing different legacy systems to integrate and communicate through GINA, ROS can transmit common data such as customer identification information, ordering information and accounting information as information or data objects easily recognizable by all of these GINA integrated systems.

Automating this process prevents duplicative tasks typically associated with the current ordering process, wherein the same data is often manually re-entered into these disparate systems several times to complete transactions. This greatly increases the speed of ordering, reduces intensive administrative labor requirements, and virtually eliminates the chance of human error associated with the current, somewhat manual, "hand-off" that must take place between these disparate legacy systems. Automation also speeds the

¹⁸⁴ Naval Postgraduate School, *GINA website*.

routing and approval process through electronic routing and progress tracking of the request and ensuing acquisition. Currently, a transaction typically requires days or weeks (and sometimes months) to accomplish. With ROS, the same transaction conceivably will now require hours or minutes, depending on the electronic review of the contracting officer and other review levels, approval and receipt chain of events.

One of the greater concerns with any contracting process is adequately documenting the purchase, or “contract” file with all the documentation required to justify the purchase and the manner in which the transaction occurred. This proves especially true of the competition and socio-economic compliance processes. The ROS provides the capability to electronically log all actions taken on a transaction, from cradle to grave. Once a customer enters all their information (which is recorded and used on all required forms and documents thereafter) in ROS and begins the search, or query process, each action taken by the customer is tagged and recorded by ROS as part of the electronic contract/order/requisition file. This includes all information regarding each product and vendor returned as a result of the query, any price or other characteristic sorting and any socio-economic, geographic or other filtering. Any sorting or filtering document can then be used to justify requirements for adequate market research, competition and compliance or utilization goals for socio-economic programs. All of the captured data is then rendered into a narrative document for easy human reading.

ROS has tremendous and wide ranging applicability to disaster relief and response contracting. The capabilities of this technology provide advantages that can be leveraged in every aspect of the emergency management cycle, from preparedness and mitigation to response and recovery. ROS is specifically designed to support USACE’s construction services related to hazard mitigation projects that prevent or lessen the effects of potential disasters. For example, strengthening the levee system in the North Central California industrial agriculture complex or repairing the levee systems surrounding New Orleans could be accomplished through calls against ID/IQ construction contracts previously competed and enrolled in the ROS program. Thus, not only would the acquirer of these services benefit from competition amongst contractors already enrolled in ROS, they will benefit from the contractor already surviving the

competitive process to enroll in ROS. Enrolled vendors in ROS already have been vetted not only through the competitive process, but have also met all other administrative requirements for doing business with the federal government.

Similarly, contractors specializing in debris removal, emergency roof repair and other types of repair and civil construction projects typified by the recovery phase of emergency management, if pre-registered in ROS, can benefit from and provide benefits to the Federal Government because of the speed of access provided via ROS. FEMA, USACE and other organizations, possibly including state and local entities, could use ROS as the prime vehicle for pre-registering these local contractors before an emergency event, such as a hurricane, flooding or earthquake. This would facilitate quick access to these services while complying with the Stafford Act preference for utilizing local vendors.

Preparedness for and initial response to disasters and other emergency events, and the remaining phases of the emergency management cycle, could benefit tremendously from pre-positioning within the Corps of Engineers' ID/IQ contracts or catalogs for the essential services and commodities required during an emergency event. For example, vendors with catalogs or ID/IQ contracts for blankets and/or bottled water, or even the infamous FEMA trailers, who already have established presence in ROS could provide an immediate, competitive resource for rapid order fulfillment of these lifesaving requirements. This same scenario could be repeated over and over for each of the essential services, providing a powerful asset to emergency management personnel at a time when speed is absolutely critical.

In addition, requirements for other, more technical services, such as training, emergency maintenance, emergency communications, security, search and rescue, mortuary, and engineering, logistics and other technical assistance contract, as well as various required consulting services could be fulfilled via ID/IQ contracts already pre-positioned within the ROS. Within the ROS, these contract vehicles and associated vendors would have, again, met all administrative and initial competitive hurdles, contain

ample information for rapid market research and provide an electronic chain of evidence to support the acquisition when faced with a post event audit or subjected to media scrutiny.

The ability to streamline the acquisition process that ROS provides not only holds the potential to dramatically speed up the logistics response, but also to avoid many of the pitfalls, mistakes and bad press that can occur when other acquisition shortcuts, due to stress and time criticality, are poorly or improperly utilized.

While sole sourcing and contracting without full and open competition are authorized during emergencies, the public at large often finds dissatisfaction with the process, as they did during the Katrina response. The ROS capability to rapidly procure essential goods and services while meeting competition and socio-economic requirements provides a powerful tool to the responding contracting organization. Not only are acquisitions conducted rapidly, saving lives and property, they are also automatically processed, saving money, labor and other scarce organizational resources and are also compliantly processed, ensuring adherence to applicable requirements without having to rely on often controversial emergency streamlined acquisition procedures. The capability to filter by geographic region or location also facilitates compliance with the Stafford Act requirement for providing preference to local vendors in disaster or emergency affected geographic areas.¹⁸⁵

In the end, the ROS stands to benefit not only emergency management organizations such as FEMA, but also DoD organizations waging the War on Terrorism, the many other organizations and agencies within the DHS charged with keeping us safe at home, and untold number of other federal, regional, state and local organizations charged with wise stewardship of taxpayer funds.

¹⁸⁵ U.S. Congress, *Stafford Act*, sec. 307.

G. ONLINE REVERSE AUCTIONS

In keeping with a growing trend within the Federal Government, FEMA and DHS have already started to use online reverse auctions as a method of procurement for technology, FEMA trailer installation and other goods and services purchases.¹⁸⁶ How, though, could online reverse auctions be applied in a disaster relief contracting environment, where rapid response is key? This section provides a brief description of online reverse auctions, their positives and negatives and then explores the feasibility and usefulness of adopting them as a procurement tool for rapidly accessible disaster relief contracting.

During a traditional forward auction, the type of auction most people tend to recognize, buyers compete for goods and services offered. This causes the price of the good or service to increase. A reverse auction functions directly opposite of this. During a reverse auction, suppliers, contractors or vendors compete to earn the business of a customer procuring goods and/or services. As they compete for this business, the intense competition involved drives the prices down.¹⁸⁷ Purchasers, or their service providers, overwhelmingly conduct these reverse auctions online. As such, each vendor can view the competition as it happens, creating immediate downward price pressure to bid even lower.

Reverse auctions as a method of procurement that gained popularity during the mid to late 1990's, beginning with the first offering of this service as an internet based electronic procurement method in 1995 by Freemarkets Incorporated.¹⁸⁸ Since its inception, many reverse auction service providers, also referred to as "Market Makers" have entered and exited the marketplace as this method of procurement quickly caught on, gained popularity, became somewhat unpopular in the early 2000's and then started to steadily increase again and level of as a more mature method of procurement.

¹⁸⁶ Robinson, *DHS moves forward with reverse auctions*.

¹⁸⁷ Merson, *Reverse Auctions: An Overview*, 2-3.

¹⁸⁸ Now a part of Ariba, Inc. as of 2004. Information from [http://en.wikipedia.org/wiki/Reverse_auction]. Accessed October 2006.

Prior to 1997, the FAR prohibited auctions in any form. However, during that year, FAR part 15 was re-written and prohibitions against auctions were eliminated, opening the door for reverse auction use within the Federal Government.¹⁸⁹ In 2000, after successfully surviving the year 2000 (Y2K) millennia computer hurdle, many federal agencies began to experiment with reverse auctions. The first reverse auction within DoD was conducted on May 5, 2000 by Naval Inventory Control Point, Mechanicsburg to purchase circuit cards for ejection seats.¹⁹⁰ Since that time, use within DoD and the Federal government has steadily increased.

Research conducted suggests that utilizing reverse auctions provides many benefits. Five of these benefits have direct applicability to disaster relief contracting. First, these auctions attract far more suppliers (or bidders) than traditional procurement methods and the actual event spurs spirited price competition.¹⁹¹ Second, this competition results in significant initial price reductions ranging from 10% to 40%. With repeated use, these reductions diminish or disappear, but the auctions hold prices closer to true market value.¹⁹² Third, the automation of the procurement cycle created by online reverse auctions, particularly the bidding and negotiation process, can reduce acquisition cycle times by around 40%.¹⁹³ Fourth, online reverse auctions are best suited for commodity type goods and standardized services.¹⁹⁴ Commodities and standardized services are the most critical items required for rapid, effective disaster response. Finally, online reverse auctions improve the “reach” of a buyer,¹⁹⁵ allowing them access to a much wider supplier base of large and small businesses, resulting particularly from the

¹⁸⁹ Merson, 11.

¹⁹⁰ Ibid., 8.

¹⁹¹ Guillemaud, et.al, *Reverse Auction Case Studies: Effectively and Ethically Lowering Supply Chain Costs*, 1.

¹⁹² Beall, et al., *The role of reverse auctions in Strategic Sourcing*, 11.

¹⁹³ Beall, et al., *The role of reverse auctions in Strategic Sourcing*, 8.

¹⁹⁴ Ibid., 8-10.

¹⁹⁵ Beall, et al., 8.

ease of use and participation that accompanies reverse auctions.¹⁹⁶ Though all of these positive attributes are directly applicable to disaster relief contracting, this last one could prove the most beneficial.

Much of the research and literature, however, also points to some very serious concerns with reverse auctions. One consistent concern is that reverse auctions eat away at supplier profits by driving prices down below cost, causing suppliers to lose money and, in some cases, go out of business.¹⁹⁷ Another consistent assertion is that the downward pressure on profits created by online reverse auctions negatively impacts supplier-buyer relations, creating an atmosphere of distrust as suppliers often feel coerced into participating.¹⁹⁸ Additionally, in order for suppliers to overcome the “winner’s curse”¹⁹⁹ and realize any profit, or at least decrease the loss, they often must provide lower service levels and cheaper quality products.²⁰⁰ These specific issues, along with a host of ethical concerns, must be addressed thoroughly for online reverse auctions to have any practical use as a disaster relief contracting method.

Though reverse auctions can be implemented via several methods, including, email, telephone, fax or bulletin board systems, they are conducted overwhelmingly with the online and web based methods. Through a review of reverse auction literature, the assumption can be made that instances where the online or web-based approaches are not used are extremely rare. Conducting reverse auctions via the internet allows a certain level of equal access opportunity, fairness, transparency, information security and even-handed treatment that cannot be guaranteed by the other methods and, as the lessons from Katrina have revealed, each of these points are key issues that are of utmost importance to rapid response disaster relief contracting.

¹⁹⁶ Persons, *Competing for Contracts Through Online Reverse Auctions*, 13-15.

¹⁹⁷ Tassabehji, et al., *Reverse Auctions and Supplier/Buyer relationships: An Exploratory Study*, 168.

¹⁹⁸ Hartley, et al., *Exploring the barriers to the adoption of e-auctions for sourcing*, 209.

¹⁹⁹ Tassabehji, et al., 169.

²⁰⁰ Hartley, et al., 204-206.

During the actual conduct of the reverse auction, information on prices and suppliers can be open, closed or scaled.²⁰¹ In an open auction, each vendor's name and current bid price is displayed, not only creating intense competition, but also allowing all suppliers to conduct market surveillance. For a closed auction, a competing supplier only knows whether he is LEAD (has the current lowest bid or LAG (does not have the current lowest bid)).²⁰² Scaled auctions are hybrids of open and closed. The prices could be shown, but the names of the competing firms masked, or the rank of each supplier (as identified by name or by assigned identification) could be shown but only the current low bid displayed. The many variations that exist can be tailored by FEMA to meet the comfort level of the participating buyer and (pre-qualified) suppliers.

Two types of internet based methods exist. Self-service software allows companies to conduct online procurements in-house and avoid the fees charged by third party providers. However, many companies prefer the second method. This involves enlisting the services of third party providers, or "market makers," such as Fedbid (a provider catering to federal agencies) or Ariba. These firms not only provide an enhanced level of service, continuity and standardization, but allow access by smaller buyer and seller organizations that do not possess robust information technology capabilities. They also provide many value added services required by the pre-solicitation process, such as market research, supplier registration and pre-qualification and many others. Many of these third party providers can even tailor purchases to be offered to specific suppliers meeting certain criteria, such as meeting FAR required socio-economic goals.²⁰³

One concern by small businesses that could affect this idea revolves around competing bid prices and the current low bid price being masked during closed reverse auctions.²⁰⁴ They contend that this closed, lead/lag bidding does not provide them with the data they need to make an educated guess about what their next bid should be, or if

²⁰¹ Patel, *Establishing Mutual Equity for Buyers & Sellers with E-Sourcing*, 20-21.

²⁰² Robinson, *DHS moves forward with reverse auctions*.

²⁰³ Persons, 14.

²⁰⁴ Varney, *Trailer Contract Process Draws Fire*, (August 14, 2006).

they should even consider bidding at all. Thus, FEMA and the provider might need to ensure that some form of open or scaled auction process be used to provide these small, often inexperienced, businesses with the information needed to make an educated bid decision that does not negatively affect their financial status.

The ease of use for small suppliers and this ability to tailor the online reverse auctions to specific suppliers could be used to direct emergency disaster relief procurements to local small business suppliers and vendors located within a disaster affected area, in support of the Stafford Act requirement for this preference.²⁰⁵ In an interview with Dee Lee, the Chief Acquisitions Officer at FEMA, she stated that one of the greatest challenges to this and many other initiatives to reach out to local vendors is that of “pre-positioning” the buying process.²⁰⁶ In other words, how can FEMA go about publicizing such a capability to ensure the widest opportunity for small businesses to pre-register?

Through entering into a partnership with one of these third party providers, FEMA could engage them to market and manage this pre-registration and pre-qualification process to small businesses throughout the nation capable of providing the required emergency commodities and services, with particular attention paid to high risk regions prone to large scale disaster events such as hurricanes, flooding, or earthquakes. FEMA could also advertise this capability via press releases, via its website and through other federal, state, regional and local emergency response organizations and related associations, as well as through Private Volunteer Organizations (PVOs) such as AMCROSS. The provider could also manage, or subcontract, the training process to ensure these businesses know how and when to participate in this process during a disaster event in their area.

When an event occurred, FEMA and the provider would be able to almost immediately turn this capability into a solid, equitable, competed, and rapid contracting mechanism. The reverse auctioning events could even be structured such that all

²⁰⁵ U.S. Congress, *Stafford Act*, sec. 307.

²⁰⁶ Interview with Ms. Deirdre Lee, FEMA Chief Acquisition Officer, (July 18, 2006).

participating vendors with capability and willingness could perform, with the price being paid resulting from some average of the lowest three to five bids, or some other equitable formula.

The online reverse auction process, if structured and managed effectively, possesses much potential as a rapid disaster relief and response contracting initiative. Though this project briefly touches on its advantage as one of several proposed idea in a suite of initiatives, it bears further consideration and investigation by emergency management professionals at all levels: State, Regional and Federal.

H. CHAPTER SUMMARY

This chapter discussed current processes and new initiatives at FEMA and DHS that are providing for marked progress in addressing acquisition process shortfalls brought to light in the aftermath of Katrina. A healthy reminder of current streamlined acquisition procedures, policies, and regulations was also provided. Though already in existence, these procedures were either misused or remained untapped during the Katrina response and efforts should be made to ensure those acquisition professionals charged with responding to the next disaster are well educated, trained and drilled in their proper use.

Finally, the chapter analyzed one existing acquisition technology, two developmental technologies, and one technology based human capital policy, all of which have potential application to disaster relief acquisition and contracting. If implemented proactively, all of them hold promise to improve acquisition processes and enable rapid disaster relief contracting at FEMA and DHS.

Chapter VI presents an attribute analysis of these four potential initiatives to identify which to implement first and in what priority order to implement the others.

VI. ANALYZING AND PRIORITIZING THE ALTERNATIVES

A. OVERVIEW

This chapter analyzes the various technological initiatives discussed in the previous chapter that can improve FEMA's acquisition workforce. Each of these initiatives can serve FEMA by a variety of benefits. The analysis views each of the attributes for each initiative and provides a weighted rating for several criteria. The ratings are converted into scores, depending on the value of the particular criteria and sub-factors. Each initiative will have a total score showing the amount of utility it could benefit FEMA's acquisition division in the future if the initiative is implemented successfully.

This analysis uses an alternative-focused thinking approach to select an initiative that should provide the greatest value to FEMA's acquisition division. Alternative-focused is a multiple attribute utility model that uses a mathematical technique to analyze options that could seem very subjective in nature.²⁰⁷ The model is used to assign priorities of need to evaluate each initiative based on the priorities found during the research. Five general areas are used for evaluation, each contributing to the potential for improving an area that FEMA faced problems with during contracting in the response to Hurricane Katrina.

The attribute-focused thinking model provides a percentage value attributed to each of the evaluating criteria. The five initiatives receive a score for every criterion and then the percentage value attributed to each criterion is multiplied by the score to receive an overall score for the criteria. All of the criteria scores for the initiative are then summed to provide the total score for the initiative. The initiative receiving the highest score provides insight as the most valued initiative to combat FEMA's problems in contracting during the Hurricane Katrina response.

²⁰⁷ Keeney, *Value-Focused Thinking: A Path to Creative Decisionmaking*, 48.

B. DESIGN SCHEMA

The attribute-focused thinking model requires five steps for the analysis. First, the problem must be recognized and potential solutions researched. The authors focused on technology initiatives that could help FEMA with future disaster relief and response acquisitions. Second, the model requires specifying values to conduct the attribute analysis. The authors developed a set of criteria based on research into FEMA's acquisition and contracting problems encountered during the Katrina response. These criteria were selected on capabilities that will improve areas of FEMA acquisition discovered through this research, as discussed in previous chapters.

The third element of the model requires alternatives for the solution. The authors used four technology initiatives listed in the previous chapter as viable options for FEMA to pursue. Fourth, the alternatives must be evaluated. This analysis used a weighted approach, placing the importance of each of the criterion and how much each initiative would benefit the specific criterion. The authors developed the weighting based on the expected importance and need for FEMA for the particular criterion. Fifth, an alternative is selected. The weighted scoring system provided an overall score for each initiative.²⁰⁸

The four technology initiatives evaluated were described in the last chapter. Each initiative is given scores for several criteria on the basis of their ability to improve FEMA's procurement division for future contracting responses. Table 6 displays the initiatives.

Online Reverse Auction	Rapid Ordering System	Telework	Global Information Network Architecture
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Table 6. Initiatives for weighted analysis.

Each criterion will receive a score between zero and five in the capabilities, and then each capability will gain a sum total of each of the scores. These scores will then be

²⁰⁸ Keeney, 49.

multiplied by the percentage given to the value of the individual criteria providing a graded rating for the criteria. Higher ratings signify more potential value added that could be received by FEMA by implementing the initiative. Table 7 lists the amount of potential benefit FEMA could receive with the corresponding score.

Scoring System
0 - Not effective at all
1 - Some effectiveness
2 - Moderate effectiveness
3 - Effective
4 - Definite improvements
5 - Exceptional improvements

Table 7. Scoring system for weighted analysis.

The five criteria evaluated are the capabilities discovered during research to be the most needed for FEMA to combat future problems with the acquisition process and future contracting responses during catastrophic disasters. Table 8 lists the criteria.

Criteria
Ability to improve the acquisition workforce
Ability to increase procurement efficiency
Ability to increase compliance to regulations
Ability to increase coordination with other activities
Ability to improve competition in contracting

Table 8. Criteria used for weighted analysis.

The evaluated capabilities, the weightings, and the scoring conducted for this analysis are subjective judgments based on the authors' research into the Federal Government's acquisition and contracting response to the Hurricane Katrina national disaster.

C. ATTRIBUTE ANALYSIS

The ability to improve the acquisition workforce is the first criteria analyzed and has been determined through the authors' research to be one of the most important characteristic facing FEMA's ability to improve future responses. The criterion contains

three sub-factors that are evaluated: 1) education and professionalism of the workforce, 2) acquiring and retaining quality workers, and 3) the efficiency of the workforce. Each of the subsets has been given 10% to 15% weighting to the overall analysis, for a total weighting of this criteria of 35%. Table 9 displays the weighting for the first criteria.

Criteria		Weighting Factor
Ability to improve the acquisition workforce	Total	35%
	Education of workers	10%
	Acquiring and retain quality workers	15%
	Efficiency of workforce	10%

Table 9. Weighting for the ability to improve the acquisition workforce.

The second criterion analyzed is the ability to increase procurement efficiency for FEMA's acquisition division. The sub-factors include: 1) increasing the amount of written contracts, 2) decreasing the amount of time to award a contract, 3) delegating buying power, and 4) increasing the visibility of all contract actions. FEMA faced problems during Katrina with the number of contracts and the inability to complete contract actions in a reasonable time. Increased efficiency can also be realized by decreasing the time it takes a contracting specialist to award a contract, by delegating buying power to another entity, thereby freeing up FEMA contracting specialists for other work or also increasing the visibility of contract actions with technology to reduce the amount of administration time FEMA must use for contract surveillance.

Each of the sub-factors received an equal weighting of 5%. The overall weighting received a value of 20%. Table 10 displays the weighting for the second criteria.

Criteria		Weighting Factor
Ability to increase procurement efficiency	Total	20%
	Increase the amount of written contracts	5%
	Decrease the amount of time to award	5%
	Delegating buying power	5%
	Improved visibility of all contract actions	5%

Table 10. Weighting for the ability to increase procurement efficiency.

The third criterion addressed the ability to increase compliance to regulations. During the Katrina response, FEMA received continued criticism and news coverage for awarding contracts without adhering to the FAR or the competition and local business clauses in the Stafford Act. The ability to comply with the FAR and other statutes sub-factors received a value of 5% while the Stafford Act compliance received 10%. The overall weighting given to this criterion comes to 15%. Table 11 displays the weighting for the third criteria.

Criteria		Weighting Factor
Ability to increase compliance to regulations	Total	15%
	FAR and other statutes	5%
	Stafford Act	10%

Table 11. Weighting for the ability to increase compliance to regulations.

The fourth criterion evaluated each initiative for its ability to increase coordination with other activities. FEMA faced many problems with the lack of visibility of resources that were contracted by other activities, which in turn made all entities fighting for the same resources without coordination and created a lot of false competition. Improving visibility of the resourcing actions of all stakeholders (state and

local governments, commercial entities, federal agencies/departments and private organizations) received the value of 10%, which was the total for this criterion. Table 12 displays the weighting for the fourth criteria.

Criteria		Weighting Factor
Ability to increase coordination with other activities	Total	10%
	Visibility of all resourcing actions of stakeholders	10%

Table 12. Weighting for the ability to increase coordination with other activities.

The last criterion evaluated was the ability to improve competition in contracting for FEMA. Improved ability to provide better competition is a federal priority, giving this criterion an overall value of 20%. Some of the sub-factors that promote improved competition are decreasing the number of sole source awards (given the value of 5%), increasing the number of pre-award ID/IQ contracts allowing firms to compete before a disaster occurs (value of 5%), and the ability to reduce the number of high risk contracts (value of 10%). Table 13 displays the weighting for the last criteria.

Criteria		Weighting Factor
Ability to improve competition in contracting	Total	20%
	Decrease the number of sole source awards	5%
	Increase the number of pre-award IDIQ contracts	5%
	Ability to decrease the number of high risk contracts	10%

Table 13. Weighting for the ability to improve competition in contracting.

Table 14 below lists the ratings assigned to each of the initiatives for the first criteria. The Rapid Ordering System (ROS) and the Global Information Network Architecture (GINA) each received a score of (1), providing some additional effectiveness to the education of the workforce since the systems slightly improve workforce knowledge by increasing the visibility and potential number of orders that can be managed. Telework received a score of (2). The ability and motivation of the individual worker completely provides the amount of education the employee achieves, but the likelihood is moderate that the employees will become better educated by motivating themselves when working more independently. Online reverse auctions (ORA) received the highest score of (3) since the knowledge and education gained from continued use of ORA has shown to force an increase in worker knowledge.

For acquiring and retaining quality workers, GINA received a (1) since it provides only potentially slight benefit for retaining workers. It is a common operation picture (COP) that provides better vision of contracts that can benefit less in the quality of workers, but focuses more on the ability to manage. When used with ROS, the benefit would be significantly enhanced. ORA and ROS received ratings of (2) for enhancing productivity and therefore provide the moderate effectiveness. Telework received the highest score of (5) for exceptionally increasing the ability to retain quality workers. Without the ability for other monetary compensation incentives, Telework has the potential of significantly increasing the morale of the best qualified personnel (particularly in the Washington, D.C. metropolitan area).

All of the initiatives will significantly increase the efficiency of the workforce. Both Telework and GINA received a (4) for increasing employee morale and the ability to retain highly qualified personnel and for increasing the ability to manage all contract actions respectively. ORA and ROS received a (5) for their ability to increase the amount of competition and contracts to the exceptional improvement level.

Criteria		Online Reverse Auction	Rapid Ordering System	Telework	Global Information Network Architecture
		Rating	Rating	Rating	Rating
Ability to improve the acquisition workforce	Education of workers	3	1	2	1
	Acquiring and retain quality workers	2	2	5	1
	Efficiency of workforce	5	5	4	4

Table 14. Ratings for the ability to improve the acquisition workforce.

For the second criteria, the ability to increase procurement efficiency, ROS received the highest rating of (5) in three of the four sub-factors, with a (4) in the improved visibility of all contract actions. Due to the design of ROS, it provides the greatest benefit in the number of contracts that can be written and limiting the time to award. It also completely allows a delegation of buying power by providing simple procedures for other activities to order through a very efficient process. ROS also allows a definite improvement in the visibility of contract actions, especially when integrated with GINA.

ORA received (4) in three areas and a (3) in improved visibility of contract actions. ORA allow a more efficient procurement process than historical bidding processes. This increases the number of contracts that can be written by an equal number of employees while decreasing the time to award using full and open competition. As well, buying power can be delegated to contract specialists much more easily using this process.

Since GINA is an architecture, it can provide better information that can assist workers to increase the number of contracts, decrease the time to award and allow senior leadership visibility of more information that can make them more comfortable with delegating buying power. This initiative received a (3), (2) and (3) respectively on the

first three sub-factors. GINA provides exceptional visibility on contract actions by providing full information as needed by management. The initiative received a (5) for the fourth sub-factor.

Telework generally provides an opportunity to increase employee morale and free up commuting time for the employee. A more comfortable working environment can very well make the employee more productive for the first two sub-factors, but this completely depends on the employee's personal motivation. For these reasons, Telework received a (2), (3) and (1) for the first three sub-factors. Telework does not provide any improvement for the visibility of contract actions, therefore receiving a (0) in the last sub-factor. Table 15 displays the ratings for the first criteria.

Criteria		Online Reverse Auction	Rapid Ordering System	Telework	Global Information Network Architecture
		Rating	Rating	Rating	Rating
Ability to increase procurement efficiency	Increase the amount of written contracts	4	5	2	3
	Decrease the amount of time to award	4	5	3	2
	Delegating buying power	4	5	1	3
	Improved visibility of all contract actions	3	4	0	5

Table 15. Ratings for the ability to increase procurement efficiency.

The third criterion, the ability to increase compliance to regulations does not receive any noticeable benefit from GINA, therefore receiving a (0) in both sub-factors. Telework does not provide any benefit except for Congressional mandates for Federal Agencies and departments to implement Telework into the Federal Civilian Workforce. For this, Telework received a (1) for other statutes and a (0) for the Stafford Act.

Both ORA and ROS received a (5) for Stafford Act compliance since they both provide potentially exceptional capabilities to increase (and manipulate as necessary) competition, promoting socio-economic policies by tailoring bids and contracts to small, local or disadvantaged businesses. ORA received a (4) for FAR compliance due to the amount of professionalism and objectivity required from the acquisition workforce when implementing this initiative. ROS received a (3) for FAR compliance due to the innovative and great potential to achieve many different results. The rating has the potential for a higher score, but due to the limited case law on ROS, the initiative may be ahead of current regulations. Table 16 displays the ratings for the third criteria.

Criteria		Online Reverse Auction	Rapid Ordering System	Telework	Global Information Network Architecture
		Rating	Rating	Rating	Rating
Ability to increase compliance to regulations	FAR and other statutes	4	3	1	0
	Stafford Act	5	5	0	0

Table 16. Ratings for the ability to increase compliance to regulations.

For the fourth criteria, the ability to increase coordination with other activities and the visibility the initiatives can give FEMA or the resourcing actions from all activities, agencies and other stakeholders, GINA leads the way. This initiative provides the potential for true visibility through many different acquisition systems to allow FEMA to manage and gain visibility of all contracting actions. The activities being resourced will help FEMA make better decisions as needed for acquisition and contracting. GINA received the highest score of (5). Telework received a (0) since it does not provide any benefit for coordination with other activities.

ORA and ROS both received a score of (3) since they both provide a technological feed for potentially enhancing the visibility for FEMA and other activities on the resourcing initiatives of other activities. Table 17 displays the ratings for the fourth criteria.

Criteria		Online Reverse Auction	Rapid Ordering System	Telework	Global Information Network Architecture
		Rating	Rating	Rating	Rating
Ability to increase coordination with other activities	Visibility of all resourcing actions of stakeholders	3	3	0	5

Table 17. Ratings for the ability to increase coordination with other activities.

For the fifth and last initiative of the ability to improve competition in contracting, ROS received a (5) for all three sub-factors, decreasing the number of sole source awards, increasing the number of pre-award ID/IQ contracts and the ability to decrease the number of high risk contracts. This initiative gives exceptional effectiveness on all factors. By its very nature, pre-award ID/IQ contracts can be set in place before the contingency takes place. Items can be competed and contracts can be set in place by small, local and disadvantaged business, but also expanded to other geographical areas if dictated by the emergency. Since contracts are set in place before an emergency, high risk contracts are avoided.

ORA is an open competition sourcing process, thereby eliminating sole source awards and decreasing the potential of high risk contracts. ORA received a (5) for both of these sub-factors. Pre-award ID/IQ contracts could be used by a reverse auction and pre-bid; this initiative received a rating of (3) for the second sub-factor. GINA does not provide an ability to increase ID/IQ contracts (receiving a (0) for that sub-factor), but provides better visibility for management, thereby decreasing the amount of high risk contracts, receiving a (4). As a COP, GINA received a rating of (3) for decreasing the number of sole source awards by giving management more information for the decision making process. Table 18 displays the ratings for the fifth criteria.

Criteria		Online Reverse Auction	Rapid Ordering System	Telework	Global Information Network Architecture
		Rating	Rating	Rating	Rating
Ability to improve competition in contracting	Decrease the number of sole source awards	5	5	1	3
	Increase the number of pre-award IDIQ contracts	3	5	0	0
	Ability to decrease the number of high risk contracts	5	5	3	4

Table 18. Ratings for the ability to improve competition in contracting.

D. PRIORITIZING THE INITIATIVES

Utilizing each of these ratings for the four initiatives, the weight given to each sub-factor is multiplied by the rating the initiative received. This provides the score for the individual sub-factors. Each sub-factor score for the initiative is added to provide the overall score for the criteria for the initiatives. The scores for all criteria are summed for the initiative, providing the overall score for the initiative. Table 19 provides the scores for the major criteria and the initiatives.

Criteria	Online Reverse Auction	Rapid Ordering System	Telework	Global Information Network Architecture
	Score	Score	Score	Score
Ability to improve the acquisition workforce	1.1	0.9	1.35	0.65
Ability to increase procurement efficiency	0.75	0.95	0.3	0.65
Ability to increase compliance to regulations	0.7	0.65	0.05	0
Ability to increase coordination with other activities	0.3	0.3	0	0.5
Ability to improve competition in contracting	0.9	1	0.35	0.55
Totals	3.75	3.80	2.05	2.35

Table 19. Total scores for the initiatives.

The ROS received the highest score of 3.80, signifying the average effectiveness for the initiative as providing definite improvements to FEMA's acquisition workforce issues. ORA came in at a score of 3.75, barely behind the ROS score, signifying the initiative practically as equally effective as implementing ROS, if not more so, since it is current technology. ROS, though very nearing completion in Winter 2007, is still in the developmental phase.²⁰⁹ GINA and Telework received scores of 2.35 and 2.05 respectively, showing at least moderate effectiveness in addressing FEMA's procurement problems. Table 20 provides a detailed description of all ratings and scorings for the sub-factors and totals on each criteria and initiative.

²⁰⁹ Naval Postgraduate School, *GINA website*.

Criteria		Weighting Factor	Online Reverse Auction		Rapid Ordering System		Telework		Global Information Network Architecture	
			Rating	Score	Rating	Score	Rating	Score	Rating	Score
Ability to improve the acquisition workforce	Total	35%		1.1		0.9		1.35		0.65
	Education of workers	10%	3	0.3	1	0.1	2	0.2	1	0.1
	Acquiring and retain quality workers	15%	2	0.3	2	0.3	5	0.75	1	0.15
	Efficiency of workforce	10%	5	0.5	5	0.5	4	0.4	4	0.4
Ability to increase procurement efficiency	Total	20%		0.75		0.95		0.3		0.65
	Increase the amount of written contracts	5%	4	0.2	5	0.25	2	0.1	3	0.15
	Decrease the amount of time to award	5%	4	0.2	5	0.25	3	0.15	2	0.1
	Delegating buying power	5%	4	0.2	5	0.25	1	0.05	3	0.15
	Improved visibility of all contract actions	5%	3	0.15	4	0.2	0	0	5	0.25
Ability to increase compliance to regulations	Total	15%		0.7		0.65		0.05		0
	FAR and other statutes	5%	4	0.2	3	0.15	1	0.05	0	0
	Stafford Act	10%	5	0.5	5	0.5	0	0	0	0
Ability to increase coordination with other activities	Total	10%		0.3		0.3		0		0.5
	Visibility of all resourcing actions of stakeholders	10%	3	0.3	3	0.3	0	0	5	0.5
Ability to improve competition in contracting	Total	20%		0.9		1		0.35		0.55
	Decrease the number of sole source awards	5%	5	0.25	5	0.25	1	0.05	3	0.15
	Increase the number of pre-award IDIQ contracts	5%	3	0.15	5	0.25	0	0	0	0
	Ability to decrease the number of high risk contracts	10%	5	0.5	5	0.5	3	0.3	4	0.4
Totals		100%		3.75		3.80		2.05		2.35

Table 20. Summary of ratings and scores for all initiatives.

E. CHAPTER SUMMARY

The weighted analysis approach allows an analysis of several already potentially positive initiatives and a capability for discerning which of the options brings the most potent benefit to an organization. FEMA's acquisition division faced several problems during the Katrina response due to several factors emanating from political history and

general make up of the organization. The analysis provided a rank order of the four technology initiatives to show which option provides the most potential benefit to solving most of the problems.

Although the ROS scored the highest of the four initiatives, ORA scored almost the same high score at just .05 points behind. GINA and Telework received significantly lower scores, but still hold substantial potential towards improving FEMA's acquisition and contracting processes. Table 21 provides the final scores for the four initiatives.

Initiatives	Scores
Rapid Ordering System	3.80
Online Reverse Auction	3.75
Global Information Network Architecture	2.35
Telework	2.05

Table 21. Total weighted scores for the initiatives.

The results of the analysis will be used in the next chapter to provide conclusions and recommendations that will hopefully provide a future direction for technological initiatives in FEMA's procurement division.

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VII. CONCLUSIONS AND RECOMMENDATIONS

A. CONCLUSIONS TO RESEARCH QUESTIONS

1. What Alternatives are Available to Improve FEMA's Acquisition Processes for Rapid Reaction to Large Scale Disasters within the United States?

Many alternatives are available to bring improvement to FEMA's acquisition processes, both during normal, pre-disaster, operations and during emergency response operations post-disaster. These alternatives not only address the surface issues, but reach through to many of the underlying causes for inadequate response. The Agency is pursuing several options that hold promise to address these systemic concerns. Several technological solutions are also available that could measurably improve the Agency's, and the entire Federal Government's response.

2. What Factors Hindered the Federal Government's Response to Hurricane Katrina, Including the Acquisition Response?

Many factors hindered the federal response to Katrina. Overall, though, leadership competency, organizational placement and stakeholder management issues created the greatest shortfalls. In addition, concerns regarding FEMA's placement within DHS and the removal of preparedness functions from FEMA left the agency without the power to influence the state of preparedness at the State and Local level. As a result, the agency's ability to act on the latter three elements of the emergency management cycle, response, recover and mitigation languished. The DHS laser focus on terrorism prevention and response also diminished the federal governments, and the nations, ability to respond to natural disasters.

The drain of other resources, especially funding levels and personnel, from federal disaster preparedness, especially at FEMA, had a ripple effect that cascaded throughout the organization. Decreased funding meant no training, or equipping, of ERTs. It also meant no resources devoted to planning and preparation efforts. Resource, or commodity management, along with other supply chain issues, suffered as well. At the time Katrina hit, FEMA was badly in need of a much more modernized supply chain

apparatus, one that included electronic, automated acquisition and contracting processes, total asset visibility supply management and transportation solutions and operational logistics capabilities, but they did not have the funding.

Lack of funds also decreased hiring authority. As many seasoned emergency response professionals became frustrated with the lack of resources and moved on, or just retired, there were no funds to replace them. Those that did stay became increasingly exasperated and overworked. This hit the acquisition workforce at FEMA especially hard. When Katrina hit, there were not enough contracting specialists to meet the demands of the disaster. Those that were available suffered from poor equipping, training and career management and were quickly overwhelmed. As a result, FEMA started to cut corners with regards to acquisition procedures and regulations just to buy the stuff fast enough to save lives.

3. What Acquisition and Contracting Concepts, Systems, Tools, and Technologies are Available that Could Be Leveraged for Rapid Response to Future Disasters?

FEMA, with the help of Congress, is pursuing several initiatives to address and improve their response capability. These include acquisition workforce initiatives such as professional certification and education and an innovative internship program; contingency contracting initiatives to create a disaster response contracting corps capable of a rapid, effective and responsible response; funding initiatives to ensure adequate disaster funding and operational funding; and initiatives to place FEMA in an organizational position within DHS that elevates the agency's power to lead and increases the response resources available.

There remains, however, room for improvement in integrating technological solutions to increase command and control and operational awareness, refine acquisition processes and speed up emergency response disaster relief contracting. As this project outlines, four promising technological solutions that warrant further research by FEMA include utilizing ORAs and providers, implementing the ROS, utilizing GINA and adopting Telework, or telecommuting as a strategic human capital tool.

4. Which Technological Initiatives Should FEMA Pursue to Improve the Acquisition Process?

FEMA should pursue all four technological initiatives: online reverse auctions, ROS, GINA and Telework. However, the benefits each provides, the issues each addresses and the urgency of the capability provided should dictate the precedence given to each and the order in which each is implemented.

Based on an attribute analysis conducted by the authors, FEMA should pursue ORAs and the ROS technologies first. Second, the agency should pursue using the GINA technology to improve operational and acquisition command and control. Finally, the agency should fully implement Congressional Telework mandates to attract greater numbers of more highly qualified acquisition professionals.

B. RECOMMENDATIONS

According to Deidre Lee, the recently appointed (March 2006) Chief Acquisition Officer at FEMA, the agency's acquisition apparatus, including the workforce, needs to be dragged kicking and screaming into the 21st century.²¹⁰ The organization is working diligently to learn the lessons of Katrina and is making great strides on several fronts, due in no small part to Ms. Lee's leadership. In addition to these efforts, here are some recommendations that may further assist the agency in meeting these challenges.

1. Utilize Online Reverse Auction Providers as One Method for Pre-Positioning the Disaster Response Acquisition Process

FEMA should very quickly engage an ORA provider to begin the process of pre-positioning the buying process in high disaster hazard areas, especially the hurricane prone areas of the Gulf and East Coast and the earthquake prone areas of the West Coast.

The agency could enter into a technical support contract with an online reverse auction service provider to market agency needs then identify, pre-register and train local vendors on this online bidding technology. When a disaster occurred, the service provider could filter for local preference and vendor type/capability, provide a list of local vendors capable of meeting stated requirements and assist in conducting the auction and follow-on acquisition processes.

²¹⁰ Interview with Ms. Deirdre Lee, FEMA Chief Acquisition Officer, (July 18, 2006).

This could provide the capability to reach out to local businesses, in compliance with the Stafford Act, and provide a relatively user-friendly and easily accessible source for smaller businesses to immediately participate in the response and recovery, including the economic recovery. The award process within the actual reverse auction event could be structured so that all responsible and capable bidders necessary to fulfill the requirement, starting from the lowest bidder and working up the list would receive orders, based on an average price or some other equitable formula. In doing this, then many smaller local businesses could make up the aggregate need with low transportation costs or time and the economic recovery effect of federal disaster response outlays could benefit those that need it most.

2. Research Feasibility of Utilizing the U.S. Army Corps of Engineers Rapid Ordering System Technology and “Virtual Storefront” as a Resource for Rapid Disaster Response Acquisition

Pre-positioning the buying process prior to a disaster strike using a combination of online reverse auction and ROS technologies would greatly improve rapid procurement response capabilities while addressing Stafford Act compliance issues. The ROS technology could automate access to multiple award schedules indefinite delivery, indefinite quantity (MAIDIQ) contracting vehicles for supplies and services and do so in a manner that filters for local vendor preference, creates an electronic track record for complete transparency, and ensures fairness through presenting multiple competitive bids.²¹¹

The technology and the actual system (the ROS) remain under development by USACE and NPS, with an anticipated go-live date of January 2007. The Corps will operate and host the ROS, as well as continue to build, improve and populate the system with contracted vendors. FEMA would need to enter into a cooperative agreement with the Corps to gain access to the ROS and ensure the ROS geographical and socio-economic sorting capabilities, as well development of the supplier base, are robust enough to provide usefulness and viability as an acquisition pre-positioning tool.

²¹¹ Drabkin and Thai, *Emergency Contracting in the US Federal Government*, 94-97.

3. Implement the Global Information Network Architecture Technology to Integrate Operations at the National Response Coordination Center

The capability to integrate the response and provide a common operating picture provided by the GINA technology would greatly improve operational command and control and improve the visibility, awareness and control required for rapid, effective and responsible disaster relief and response acquisition operations. FEMA should immediately explore opportunities to use the GINA in this capacity.

The GINA technology would provide marked increases in FEMA's ability to integrate disparate communications and information systems to maintain a COP during a disaster, including operational response, as well as acquisition response, command and control.

FEMA should work with the developers at NPS and USACE to initiate preliminary design and implementation planning for a small scale prototype test prior to the 2007 hurricane season. This could possibly be accomplished via implementation on a mobile command and control platform, and then the technology rolled out at the NRCC and the Regional Response Coordination Centers (RRCCs) in the following two years, consecutively.

This moderately ambitious, yet metered approach allows time for further development, testing and troubleshooting at the initial Fort Leavenworth test site, yet fields the capability in parallel with this effort to gather additional development data. As well, utilizing a test bed allows the experiment to be conducted alongside existing methods as a redundant measure.

4. Pro-Actively Adopt Telework as a Strategic Human Capital Tool

The roles, responsibilities and tasks carried out daily by acquisition professionals, aside from those in top leadership positions, are readily transferable to the Telework environment, given the proper information technology support. Fully implementing the congressional mandate for promoting Telework, if integrated into the package of acquisition workforce initiatives currently underway at DHS and FEMA, could attract greater numbers of well qualified and motivated acquisition professionals to FEMA.

Telework could also decrease workforce hiring, management and retention costs. Successful, equitable and well managed Telework programs serve as major morale boosters and also holds potential for greatly increased productivity. Happy, productive workers make better employees who are less likely to leave. Fewer turnovers create greater efficiency, knowledge and professionalism and can be used to attract talented professionals. All these factors, taken together, hold great cost reduction potential, both in personnel and operational costs.

5. Create an Interagency Contracting Operations Cell within the National Response Coordination Center

FEMA should create an Interagency Contracting Operations Cell (ICOC) within the NRCC. This cell could function to provide oversight and guidance of the disaster relief and response contracting process when an event occurs. The ICOC could also serve to advance the rapid diffusion of innovative, effective, and responsible acquisition concepts from one agency to another as part of the problem-solving dynamic that would be likely to occur during an emergent situation.

The leadership of this cell should be senior enough and qualified enough to be vested with the requisite Head of Contracting Activity (HCA) decision-making authority. HCA authority would need to be granted in order to facilitate rapid response by acquisition and contracting professionals on the “front-lines” responding to the disaster.

This concept would greatly strengthen the response by more quickly serving the information and decision needs of the acquisition and contracting professionals responding. It would also strengthen the transparency of the process and increase the ability to successfully juggle the competing demands of regulatory compliance and rapid, agile reaction.

As with the NRCC, the ICOC would greatly benefit from use of the GINA technology to create a COP that would include visibility of all contracting actions fed into each responding agency’s legacy systems, as well as many other integrated acquisition operations needs.

6. Resource FEMA Appropriately and Ensure Stability of Organizational Placement

Congress should ensure that FEMA consistently receives ample funding to maintain robust federal disaster response capabilities and to plan, prepare and train for the next disaster. Never again should the organization's preparedness be allowed to languish for lack of funding.

As discussed in chapters IV and V, Congress took steps not only to increase FEMA operational funding, but also to ensure the most effective organizational placement of the agency by inserting several key provisions in the 2007 DHS Appropriations Bill. Congress should continually work with the Administration to ensure these provisions are upheld in the future and are not bypassed, ignored or overturned. Thus ensuring the stability that FEMA needs to prepare for and respond to the next disaster.

7. Update the Stafford Act, National Response Plan, and National Incident Management System to Reflect Lessons Learned from Katrina

FEMA leadership, along with select emergency management professionals in state, local and regional organizations should work with Congress and the Administration to revamp and update the Stafford Act, the NRP and the NIMS to correct shortcomings that surfaced during the Katrina response. For example, they should work to have the Stafford Act changed to insert language and mechanisms that allow for reimbursement of pre-disaster activities outside of the Catastrophic Incident Annex and ease restrictions on reimbursement if no disaster actually occurs.²¹²

C. AREAS FOR FUTURE RESEARCH

1. Logistics Civil Augmentation Program (LOGCAP)

Husbanding contracts were drawn on extensively in DoD's response to the 2004 Tsunami, Katrina, and the 2005 Pakistan earthquake. What would be an optimum way to

²¹² U.S. Congress, Senate report, Foundational Recommendation #7 and White House report, 99.

structure husbanding contracts to include provisions for standing up a “Mini-Logistics Civil Augmentation Program (LOGCAP)” contingency support arrangement in support of disaster response within the U.S.²¹³

Many calls throughout the reports and literature relating to Katrina suggested implementing LOGCAP contracts for disaster response. One of the most vocal proponents of this concept is Bill Carwile, the FCO in Mississippi during Katrina, who indicated that the mission planning and rapid response competencies of experienced LOGCAP contractors could prove a valuable asset in time of emergency.²¹⁴ What implementation issues, pros and cons surround this concept? What are the relevant statutory guidelines, political and social considerations?

2. Requirements Generation and Communication Process

One of the large concerns brought out in the literature surrounding the response to Katrina involved the requirements generation process, or lack of an organized and effective process, and the many difficulties in effectively communicating the requirements. What would be an optimum, integrated and structured approach to requirements generation and communication of those requirements to the organizations charged with fulfilling the requirements?

3. Structuring an Interagency Contracting Operations Center

What would be the optimum framework, including business rules and protocols, required statutory authorities, staffing, resources, and required technologies for standing up an Interagency Contracting Operations Center? What training, education and drilling requirements should be in place?

4. DDX Concept and Other DLA Initiatives

Beginning in 2006, the DLA initiated partnering arrangements to provide FEMA with extensive supply chain logistics and resource support. What are the details of these arrangements and how could these innovations be exported to other disaster support arrangements? How feasible is the DDX concept as a disaster response capability? How

²¹³ Captain Steve Shapro, Naval Postgraduate School Acquisition Seminar Guest Speaker, (November 2, 2006).

²¹⁴ Bill Carwile interview, (September 16, 2006).

did it perform in its first deployment and what are some recommendations for improvement? How could FEMA disaster relief and response contracting personnel utilize the DDX as a base of operations? Is this even advisable?

5. Telework, An In Depth Cost Benefit Analysis

Proactively managed telecommuting programs have been heralded as a cost saving, efficient, productivity increasing and morale boosting human capital strategy/initiative. Its use has been congressionally mandated and it is being strongly encouraged, especially in the acquisition workforce.²¹⁵ Provide an in-depth cost benefit analysis and discuss the implement issues, positives and negatives surrounding the concept.

6. National Interagency Fire Center-Style Response Organization

The National Interagency Fire Center (NIFC) provides a coordinated, resourced and proactive approach to wildfire management and response. It exists as a collaborative and well organized support center for operational planning, response and combat logistics for wild land firefighting.²¹⁶ What lessons could be learned and exported from the NIFC, in broad organization-wide command and control terms and in narrower systems development acquisition and resource acquisition terms?

7. Political and Social Considerations

What are the political and social considerations surrounding federal emergency response, especially with respect to acquiring and providing goods and services? What obligations does the federal government have during a disaster? What rights and obligations does the individual citizen have during a disaster? Structure a decision-making model to help guide this decision process.

D. SUMMARY

This project outlined many of the failures in the federal response to Hurricane Katrina. In addition to the overwhelming magnitude of the storm, there are myriad

²¹⁵ U.S. Office of Personnel Management website, *Telework laws*.

²¹⁶ National Interagency Fire Center Website, *NIFC Mission*. [<http://www.nifc.gov/nifcmiss.html>]. Accessed November 2006.

reasons why the federal response proved inadequate. One major point of failure was the acquisition and contracting apparatus, especially at FEMA. This needs to be fixed before the next large scale disaster.

The perspectives, reviews and research into innovative ideas included in the project provide a fresh outlook and a starting point for solving several of the concerns expressed by all involved and can contribute to resolving some of the major issues identified. In this endeavor, the authors sincerely hope this project assists, in some measurable way, those with the power to make a difference.

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